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NOTES ON THE PARASITIC FUNGI OF ILLINOIS

L. R. TEHON

(WITH PLATE 13)

During the years 1881 and 1882 the State Natural History Survey began the study of the parasitic fungi of Illinois. The collections made in those years by A. B. Seymour and the resulting publications on the rusts of Illinois by T. J. Burrill and on powdery mildews by Burrill and F. S. Earle have so long been a part of the working material of the mycologist that they need no comment.

In 1921 the task was undertaken again by the Natural History Survey. The intention of this later program has been especially to ascertain what plant diseases occur in Illinois and what their distribution within the state is. Particular attention is being paid to the common diseases of crops, but there is being accumulated a considerable quantity of other material. As time allows this material is being studied, and it is planned to publish the results of the studies from time to time as things of interest or value accumulate.

The fungi included in this paper are new, or have not hitherto been reported from Illinois. They are, for the most part, collections made in southern Illinois during 1922 by P. A. Young.

Septoria atropurpurei n. sp.

Spots 2–10 mm. in diameter, irregularly circular, reddish-brown with a small paler center above, evident below as discolored brownish patches, often coalescent and involving much of the leaf. Pycnidia numerous, scattered but more frequent in the center of the

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spot, erumpent above but evident beneath, 200–250 μ in diameter. Spores filiform, commonly crescent-shaped but often flexuous, ends tapering but not acute, hyaline to smoky, chiefly 3-septate, 22–45 x 2 μ; most often 29–32 μ long.

On *Evonymus atropurpureus* Jacq.

Marion, Williamson County, Illinois, July 19, 1922. Acc. No. 2064 (type).

Six species of *Septoria* have been described on *Evonymus*. On *E. japonicus* there are three species from which ours is distinguishable by the size, shape and septation of the spores. It is separated from *S. evonymi* Rabenh. on *E. europaea* by its consistently larger spores. There is some similarity to *S. semi-circularis* Sacc. & *Scalia* in the spore curvature but this character is not sufficiently constant in our species which also possesses larger pycnidia and consistently larger spores. From *S. spiculispora* E. & E. it is distinguishable because of its larger pycnidia and longer, wider spores.

Leptothyrium brunnichiae n. sp.

Caulivorus. Spots slightly blanched, limited laterally by the angles of the stem but extending considerable distances longitudinally. Pycnidia numerous, black, subcuticular, 200–225 μ in diameter. Spores continuous, oval, hyaline, 3.5–4.5 x 1.5 μ.

On *Brunnichia cirrhoe* Gaertn.

Karnak, Pulaski County, Illinois, Aug. 8, 1922. Acc. No. 1120 (type).

The unusually small spores of this species distinguish it from *L. vulgare* (Fries) Sacc. Its mycelium is parasitic in the superficial cells of its host. Tissue invasion appears to extend longitudinally along the stem but not laterally to any extent. A thin hyalin mycelium follows the cell walls, sending thin filamentous haustoria into the cells. At intervals strands of mycelium come to the surface and by a process of cell proliferation form a thin, shield-shaped, parenchymatous pycnidium beneath the cuticle. The habit of the fungus is shown in figures 1 and 2.

Actinothyrium gloeosporioides n. sp.

Spots round, straw-colored to brownish, 2–5 mm. in diameter, with a definite, raised, brown border. Pycnidia epiphyllous, nu-

merous, scattered, superficial, radiate, opening by a definite pore, often confluent, 50–95 μ in diameter. Spores oval, hyaline, continuous, 6–7.5 x 11–12 μ. Superficial mycelium lacking; endophyllous mycelium invading and parasitizing the cells of the epidermis and deeper tissues.

On *Sassafras variifolium* (Salisb.) Kze.

Christopher, Franklin County, Illinois, July 20, 1922. Acc. No. 2972 (type). Johnson City, Williamson County, July 18, 1922. Acc. No. 3671.

The spot caused by this fungus is similar to the *Gloeosporium* spot so common on *Sassafras* in Illinois. It is evident, however, that this fungus is parasitic and causes the spots upon which it is found. The connection of the pycnidia with endophytic mycelium is shown in figure 6. The radiate character of the pycnidium is shown in figure 3 and the joining of pycnidia in figure 4. Spores are shown in figure 5.

Pirostoma nyssae n. sp.

Spots variously distributed upon the leaf, more frequent along the midrib and margins, large (5–20 mm.) with a black border enclosing a bleached halo, the halo surrounding an island of contracted, blackened leaf tissue on the upper side. Zonation not so apparent beneath. Pycnidia epiphyllous, distribution limited to the black center of the spot, 60–95 μ in diameter, superficial, radiate, opening by a roundish stoma, edge made irregular by the extending points of the hyphae composing the pycnidial covering. Spores olivaceous to brown, slightly verrucose, oval, 7 x 12 μ, appearing slightly stalked at the basal end. Mycelium abundant in the tissues of the host leaf which it parasitizes, kills and blackens.

On *Nyssa sylvatica* Marsh.

Tunnel Hill, Johnson County, Ill., July 25, 1922. Acc. No. 2940 (type).

This is not *Leptothyrium dryinum* Sacc. It differs in the nature of the pycnidium (fig. 7) which is radiate and has a round opening, and in the shape and color of the spores (fig. 8). We have placed it in *Pirostoma* in spite of the slight roughness of the spore case feeling that the conglobate character of *Discomycopsella,* which this species does not possess, was more distinctive than spore case characters.

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Our specimen showed some perithecia of the same character as the pycnidia which contained immature asci. These asci were oblong-clavate, 30–35 x 15–17 μ, and appeared to contain hyaline, filiform spores.

Cercospora menispermi E. & H.

On *Menispermum canadense* L.

Francis, Saline County, Ill., July 13, 1922. Acc. No. 2299.

While apparently conspecific with Ellis and Harkness' species, this specimen is remarkable in having spores as long as 140 μ. The slenderness of the conidiophores and spores is remarkable being as a rule 3.5 μ. The spore color is variable, some spores being almost hyaline.

Cercospora personata (B. & C.) Ell.

On *Arachis hypogaea* L.

Chester, Randolph County, Ill., Aug. 22, 1922. Acc. No. 3155. This is the first report of this *Cercospora* in Illinois.

Cercospora chionea E. & K.

On *Cercis canadensis* L.

Makanda, Jackson County, Ill., August 19, 1922. Acc. No. 505. Thebes, Alexander County, August 17, 1922. Acc. No. 604.

These specimens differ from the original description of the species in having conidiophores as long as 75 μ and spores that vary from 1- to 8-septate. The spores also show more variation in length, measuring 30–65 μ.

Cercospora cruenta Sacc.

On *Vigna sinensis* Hassk.

Makanda, Jackson County, Ill., Aug. 19, 1922. Acc. No. 640.

This is the first report of the occurrence of this species in Illinois.

Cercospora echinocystis E. & M.

On *Echinocystis lobata* (Michx.) T. & G.

Gallatia, Saline County, Ill., July 13, 1922. Acc. No. 2325.

This is the first report of the occurrence of this species in Illinois.

Cercospora bliti Tharp.

On *Rubus* sp. Cultivated Blackberry.

Thebes, Alexander County, Ill., August 17, 1922. Acc. No. 526. Etherton, Jackson County, Ill., August 21, 1922. Acc. No. 1701.

This species was identified by comparison with specimens furnished us by Professor Tharp from Texas.

Cercospora plantaginella n. sp.

Spots small 0.5–1.5 mm. in diameter, white, with a dark somewhat raised border, round, limited. Conidiophores dark-olivaceous to brown, septate, 45–85 x 4.5 μ. Spores hyaline, 44–120 x 2.5–3 μ, 6–10-septate, straight, obclavate.

On *Plantago rugelii* Dcne.

Boaz, Massac County, Illinois, August 8, 1922. Acc. No. 1140 (type).

Cercospora plantigenis Sacc. recorded on *Plantago lanceolata* and on *P. major* has different spots and shorter, narrower conidiophores with much longer and wider spores.

Cercospora hemerocallis n. sp.

Spots circular, frequently confluent, brownish with a distinct, raised red margin, 0.5–4 mm. diam. Sporophores erect, short, 40–60 x 4 μ, fascicled, light-olivaceous, septate, tips distinctly lighter, basal cell often expanded and spherical. Spores hyaline, obsolete septate 3–5 times, acicular, straight or slightly curved, 75–110 x 3–4 μ.

On *Hemerocallis fulva* L.

Bloomfield, Johnson County, Ill., July 25, 1922. Acc. No. 2897 (type).

Cercospora psedericola n. sp.

Spots 1–3 mm. in diameter, extending through the leaf, black above and below when old. Sporophores hypophyllous, fascicled and spreading, olivaceous, septate, 45–85 x 4–4.5 μ. Spores olivaceous, obclavate, the upper portion distinctly larger than the remainder, 2–7-septate, 47–66 x 7–8 μ.

On *Psedera quinquefolia* (L.) Greene.

Buckner, Franklin County, July 20, 1922. Acc. No. 2987 (type).

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Two species hitherto recorded on *Psedera* (*C. ampelopsidis* Pk. and *C. pustulata* Cke.) are said to be similar to each other, except for color and length of spores. They differ distinctly from our species in character of spots and in size of conidiophores and spores. The spore shape of our species is particularly distinctive, the upper 2 or 3 cells frequently being so enlarged and rounded as to appear to append the remaining more slender part of the spore. The characters of the conidiophores are shown in figure 9, and those of the spores in figure 10.

Cercospora cercidicola Ell. var. **coremioides** n. var.

On *Cercis canadensis* L.

Boaz, Massac County, Ill., August 8, 1922. Acc. No. 1129 (type of the variety).

This specimen shows spots that are characteristic and the spores fall well within the measurements of the species, although tending to be somewhat longer and to show one or two septa only. It is remarkable on account of the conidiophores which vary from 210 to 310 μ long, are rigid, upright, and closely adherent throughout the greater part of their length, loosening only at the tip where the spores are borne as shown in figure 11. The character of the conidiophores leads us to establish the variety.

Cercospora nepetae n. sp.

Spots subcircular, 0.5–3 mm. in diameter, grayish with a narrow brown margin. Fasciculae amphigenous, erect, more abundant toward the center of the spot, usually rising above the trichomes. Sporophores long, erect, lax, gregarious, dark olivaceous, septate, with a long sporogenous tip showing many scars, 110–225 (mostly 180) x 4–4.5 μ. Spores hyaline, variable, 40 x 3.5–4 μ and 1-septate to 118 x 3.5–4 μ and 3-septate, cylindrical, straight, ends blunt or rounded, rarely curved and cylindrical-obclavate.

On *Nepeta cataria* L.

Ullin, Pulaski County, Ill., August 11, 1922. Acc. No. 1419 (type).

The conidiophores of this species shown in figure 12 are particularly striking and distinctive.

Cercospora viminei n. sp.

Spots amphigenous, more apparent above, light brown, definitely limited, 4–8 mm. in diameter, usually separate, but occasionally confluent and then involving much of the leaf. Fasciculae abundant, even crowded, on both surfaces of the spot, erect. Sporophores light-olivaceous, numerous, upright, undulating, continuous or rarely 1–2-septate, arising from a black sub-epidermal stroma. apically denticulate, occasionally short-branched at the tip, 36–55 x 4.5 μ. Spores hyaline, extremely variable in shape, short, cylindrical and continuous to longer, obclavate and 5-septate, straight or somewhat curved, 36–65 x 4.5–5.5 μ.

On *Aster vimineus* Lam.

Waltonville, Jefferson County, Ill., June 23, 1922. Acc. No. 2600 (type).

A first view of this species, with its abundance of immature spores, led us to think it a *Ramularia*. Later examination, with a view to specific determination, revealed its identification with *Cercospora*. The collection is especially interesting because of the abundance of spores upon the numerous fasciculae which give a whitish appearance to the spot. There is a suggestion of *Ramularia virgaureae* Thuem. in the manner, though not in the degree, of spore variation.

Colletotrichum trillii n. sp.

Spots large, 5–20 mm. in diameter, often becoming confluent and involving the entire leaf, dead areas brown, definitely limited and sunken, areas recently invaded by the mycelium dark green and appearing water-soaked. Acervuli dark brown to black, circular in outline, amphigenous but chiefly epiphyllous, numerous. Setae abundant, chiefly visceral, brown, acute with bulbous base, 65–95 μ long. Spores hyaline to smoky-green, allantoid, nonseptate, 15–18 x 3.5 μ.

On *Trillium recurvatum* Beck.

Ryder, Jefferson County, Ill., June 23, 1922. Acc. No. 2350 (type).

Type specimens have been designated by the accession numbers they occupy in the Survey Herbarium. Whenever types are distributed to other herbaria the specimens will bear labels duplicating exactly those on the specimens in our herbarium. It is hoped

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that this procedure will eliminate any confusion which might arise from the use of numbers assigned by collectors.

STATE NATURAL HISTORY SURVEY,
URBANA, ILLINOIS.

EXPLANATION OF PLATE 13

Fig. 1, 2. *Leptothyrium brunnichiae:* 1, habit sketch; 2, pycnidium.
Fig. 3-6. *Actinothyrium gloeosporioides:* 3, pycnidium; 4, confluent pycnidia; 5, spores; 6, connection of pycnidium and endophytic mycelium.
Fig. 7, 8. *Pirostoma nyssae:* 7, pycnidium; 8, spores.
Fig. 9, 10. *Cercospora psedericola:* 9, sporophores; 10, conidia.
Fig. 11. *Cercospora cercidicola* var. *coremioides,* sporophores.
Fig. 12. *Cercospora nepetae,* sporophores.

NEW AND NOTEWORTHY FUNGI.[1]—III[2]

JOHN DEARNESS

BASIDIOMYCETES

Following a dry summer the warm and showery autumn of 1923 was more than usually favorable for the development of fleshy fungi in southwestern Ontario. Examples of a number of species that I collected or received reached or exceeded the maximum size ascribed to them in the literature consulted. A few of these are noteworthy either on account of such excess or as a record of distribution.

LEPIOTA PROCERA Fries

Delaware, Ont., Oct. 1, 1923.

Pileus not circular; 20.9 cm. and 17.6 cm. in transverse diameters.

PLEUROTUS SAPIDUS Kalchb.

At Pond Mills, Ont. A prone elm trunk overlying a creek and its swampy margin bore a number of imbrications of this mushroom. The largest pileus was laid on white paper and threw down a beautiful lilac spore-print 34.7 by 20.4 cm. Portions of this collection, fried in the manner of "crumbed oysters," were served for three or four successive days and much enjoyed by the partakers.

LEPISTA GRAVEOLENS (Peck) Murrill

In Rondeau Park, Ont., Oct. 1923.

"Growing in circles and troops, fifty or more plants in each colony. The largest individuals between 10 and 12 cm. broad."—Dr. C. C. Bell.

AGARICUS PLACOMYCES Peck

Near London, Ont., in woods, Sept. 4, 1923.

[1] Acknowledgments for opportunity to examine type or co-typic material and for citations of literature are due Dr. H. D. House and Dr. F. J. Seaver.

[2] I, Mycologia **8**: 98–107. 1916. II, Mycologia **9**: 345–364. 1917.

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One fresh plant measured 15.5 cm. across the top; the lamellae were 12 mm. wide and the annulus extended 29 mm. from the stem. A partially decayed plant measured about 17 cm. in diameter. On Oct. 5, Dr. T. Bowman brought in fresh specimens between 11 and 12.5 cm. in diameter. This species is not a favorite among mycophagists but this last collection made a savory and acceptable dish.

Dr. C. C. Bell, who has studied the fleshy fungi of Rondeau Park, Lake Erie, finds a white form of *A. placomyces* rather common which is nearly smooth even to the center of the pileus.

A. Rodmani Peck, nearly hemispheric, 9.75 cm., and *A. haemorrhodarius* Fries, over 9 cm., both growing within the city (London), are worth noting.

BOLETUS HEMICHRYSUS Berk. & Curtis

In cleft of a living trunk of *Quercus rubra* L., Rondeau Park, Ont., Sept. 30, 1923; Dr. C. C. Bell.

A fine large golden yellow specimen. "Flesh turning bluish when cut." To plants of this species with this character Dr. Peck gave the variety name *mutabilis*. He recorded that it inhabited stumps of *Pinus Strobus* L.

CALVATIA BOVISTA (L.) McBride

The giant puff-ball is a fairly common species in southern Ontario. In the first week of October Dr. T. Bowman brought me half of a globose specimen whose circumference was 4 ft. 3 ½ inches. It was solid,—the growth evidently not completed. This was small, however, compared with the Herkimer Co., N. Y., specimen reported by the late Prof. C. E. Bessey in the American Naturalist, May, 1884, which was a flattish, somewhat irregular fruit whose shorter diameter as measured by Professor Call was 4 ft. 6 inches.

MYRIOSTOMA COLIFORME Dicks.

Essex Co., Ont., Oct. 4, 1922.

Specimens opened; date of maturity uncertain. The spread of the ectoperidium of the largest specimen was 16.4 cm. from tip to tip; the inner peridium, 5.4 cm. in diameter.

MYCENASTRUM CORIUM Desvaux

Gatineau Pt., Ottawa River, Ont., June 1919; W. S. Odell: *197*. Essex and Kent Counties, Ont.; Oct. 3–4, 1922. Specimens fresh, white and firm inside. D. *4391*.

PHYCOMYCETES

PERONOSPORA LOPHANTHI Farl., var. **Moldavicae** Dearn. & Barth. var. nov.

Conidiophores 100–225 μ long, 10–12 μ thick at base, once to thrice dichotomous, unequally forcipate—the longer fork usually about 15 μ, the shorter 9 μ. Conidia sometimes globose, oftener limoniiform, the latter 25–32 x 17–23 μ. The spores are larger and the conidiophores less complex than in the type. No oöspores were found.

On *Moldavica parviflora* (Nutt.) Britt. Ten Sleep Canyon, Wyo., Aug. 29, 1923. E. Bartholomew: *8339*.

DISCOMYCETES

Phacidium Gaultheriae sp. nov.

Scattered irregularly on whitened areas which surround the stems for one to several cm., black, shining, opening mostly by four triangular laciniae, .7–1 mm. in diameter. Asci clavate, rounded at top, 8-spored, 105–135 x 14–15 μ, paraphysate. Sporidia hyaline, elliptic, sub-acute or rounded at ends, uniseriate or biseriate at the widest part a short distance from the top of the ascus, 12–19 x 6–9 μ.

On dead stems of *Gaultheria shallon* Pursh. Langley, Wash., Apr., 1923. J. M. Grant: *5090*. Besides being caulicolous it is much larger than *P. Vaccinii* Fr.

Mollisia Angelicae sp. nov.

Apothecia dark-brown, superficial, mostly hypophyllous, occasionally epiphyllous, sessile, rugose-costate, urceolate, leucostomate, 125 μ wide, 100–110 μ high, excipulum short-celled. Asci oblong to fusoid, 8-spored, 36–40 x 9 μ; scantily paraphysate. Sporidia hyaline, 2-nucleate, oblong but usually somewhat narrower at one end, biseriate or obliquely uniseriate, 9–15 x 2.5–3 μ.

On dead parts of living leaves of *Angelica atropurpurea* L. London, Ont., Sept., 1923. Dearness: *5416*.

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More than 100 leaves were collected bearing both this *Mollisia* and *Fusicladium depressum* (B. & Br.).

ASCOBOLUS CROUANI Boud. (not Cooke)

An *Ascobolus* was collected on stems of *Brassica oleracea gemmifera* by Roy Latham: *577*, at Orient, N. Y., which is hardly separable from Boudier's *A. Crouani*. The sporidia, 15–19 x 10–11 μ, hyaline at first become so dark-brown as to obscure the reticulations which are longitudinal and anastomosing, about 6 visible on each side. "These Brussels sprouts stems were plowed under in November and turned up in the following spring; the collections were made about the end of June, 1922."—R. L.

HYPODERMATACEAE

The known hypodermatous needle-fungi are well represented in America. Some of them are weakly parasitic while others are of much economic importance, *e.g., Lophodermium pinastri* on nursery stock and *Hypoderma deformans*, a witches' broom producer on forest growth. See Dr. J. R. Weir's account of the latter in the Journ. Agr. Research, Vol. VI, pp. 277–288.

Recently v. Hoehnel [3] has exhaustively revised the Phacidiales, breaking up the old genera and creating a number of new ones. The forms here considered fall into three of his six groups: the Leptopeltineen, subcuticular, *e.g., Lophodermium lineare* (Peck) (*Bifusella* and 12 other genera); the Dermopeltineen, intra-epidermal, *e.g., L. pinastri* Schraed. (*Lophodermellina* and 9 other genera); and Phacidiaceen, *e.g., Hypoderma sulcigena* Rostr. (*Lophodermella* and 11 other genera). The more familiar names as employed by Tubeuf,[4] Lagerberg [5] and Lind [6] are used in making the following tabulation based on the spore forms. Tubeuf founded the genus *Hypodermella* to receive the species with spores

[3] Berichte der Deutsch. Bot. Gesellsch. **35**: 416–422, 1917; Annales Mycologici **15**: 311, 318, 503.

[4] W. G. Smith's Tr. Tubeuf's Diseases of Plants, 1897, and Tubeuf's Studien uber die Schuttekrankheit der Kiefer, 1901.

[5] Medd. fran Statens Skogsforsoksanstalt; Stockholm, 1910. From this I am indebted to Dr. J. R. Weir for translated citations.

[6] Danish Fungi: Herbarium of Rostrup; Copenhagen, 1913.

Name	Host	Apothecium length	Ascus in μ	Sporidia in μ
Rhabdocline				
Pseudotsugae Syd.	*Pseudotsuga taxifolia*	Medium and variable	58–147 × 14–19	15– 20 × 6–8½
Hypoderma				
(*a*) *brachysporum* (Rostr.) Tub. = *strobicola* Tub. = *Desmazierii* Duby	*Pinus Strobus*	Short	60–100 × 13–16	15– 22 × 3–3½
robustum Tub. and f. *latispora*	*Abies concolor* and *A. amabilis*	Long and medium	150–165 × 30–36	28– 36 × 3– 4
var. *Pini*	*Pinus monophylla*			
(*b*) *deformans* Weir and f. *contorta*	*Pinus ponderosa* and *P. contorta*	Long and variable	166–187 × 27–32	107–119 × 7– 9
lineare (Peck) de Thuem. in *Bifusella* v. Hoehn	*Pinus Strobus* and *P. monticola*	Medium and variable	100–180 × 31–40	each part 25– 35 × 4– 5
Hypodermella				
nervisequia (Fr.) Lag.	*Abies* spp.	Long	62–105 × 13–20	42– 60 × 2½–3½
Abietis-concoloris ?(Mayr) Dearn.	*Abies concolor*	"	120–168 × 18–23	65–120 × 3– 4
macrospora (Hartig) Lag.	*Picea* spp. and *Abies* spp.	Medium and variable	100–140 × 15–28	60– 75 × 2– 4
Laricis Tubeuf	*Larix*	Short	90–110 × 20–25	4-spored 60– 70 × 6
sulcigena (Link) Tubeuf = *pinicola* (Brunch.) R.	*Pinus silvestris*, *P. flexilis*, and *P. contorta*	Short to long	80–150 × 13–30	4- or 8-spored 36– 56 × 3½– 6
montivaga (Petrak) Dearn.	*Pinus contorta*	Short	70–120 × 14–16	35– 48 × 3½– 4
medusa Dearn.	*Pinus Jeffreyi*	"	125–150 × 23–26	52– 75 × 4– 5
ampla (Davis) Dearn.	*Pinus Banksiana*	"	90–165 × 18–30	30– 72 × 3– 6
Lophodermium				
gilvum Rostrup	*Pinus austriaca*	"	75– 80 × 10–12	70– 75 × 2
pinastri (Schrad.) Chev.	*Pinus* spp.	"	90–150 × 10–14	75–140 × 1½– 2
Abietis Rostrup	*Abies* and *Picea*	"	80–140 × 10–16	70–125 × 1½– 2
laricinum Duby	*Larix* spp.	"	90–100 × 9–10	70– 75 × 2½
juniperinum (Fr.) de Not.	*Juniperus* spp.	"	70– 90 × 10–12	65– 75 × 1½– 2
juniperinum Cupressi-thyoides Sacc.	*Chamaecyparis* and *Libocedrus*	"	75– 90 × 9–12	65– 75 × 1½– 2
Thuyae Davis	*Thuja occidentalis*	"	80–100 × 10–12	70– 80 × 1½– 2

of the inverted shape of a tear at the point of falling and apportioned the others between *Hypoderma* and *Lophodermium*.

HYPODERMA spores sub-cylindric, about one-quarter of the ascus-length, sometimes uniseptate.

HYPODERMELLA spores sub-clavate or tear-shaped, one-half to three-fourths of the ascus-length.

LOPHODERMIUM spores filiform in a bundle approximating the ascus-length.

In the table apothecia said to be short are usually less than 2 mm.; medium, from 2–4 mm.; and long, 4–30 mm. or extending the length of the leaf. Sometimes short ones are confluent and long ones interrupted. The sporidia and especially the asci are very variable in size, a fact illustrated in the English edition of Tubeuf's Diseases of Plants, pp. *237, 239*. In *Hypoderma deformans, e.g.,* Dr. Weir found the range of ascus-length 159.5 to 207.2 μ.

RHABDOCLINE PSEUDOTSUGAE Sydow

On *Pseudotsuga taxifolia;* Star, Lane Co., Oreg.; June, 1922; and Sinslaw National Forest; May, 1923. J. S. Boyce: *968, 1142*. Also on Vancouver Isl., B. C.

" Parasitic on trees planted in 1913,—not however on the entire stand. The trees most heavily affected have lost all but their 1922 leaves and these are likely to be attacked and killed this year." Note on *1142* in 1923.—J. S. B.

Stained transections of several leaves through ascocarps differentiated the structures clearly without revealing any apothecial wall. The epiderm splits centrally over the ascocarp or more frequently at its side and remains over it like a partly-open lid. Had it a roof of its own making it would be a good Hypoderma. In *Hypoderma deformans* Weir (J. S. Boyce: *830*) and *Hypodermella montivaga* (Petrak) (Weir: *10,052*) small fertile ascocarps without a discernible wall were observed.

An illustrated account of this interesting fungus was published by Dr. J. R. Weir in Jour. Agr. Research, July, 1917, pp. 99–104 with plate.

HYPODERMA BRACHYSPORUM (Rostrup) Tubeuf

The form found at London, Ont. on *Pinus Strobus* agrees with the figures in Tubeuf's "Studien" and Lind's "Rostrup" and nearly with the description in Rehm's "Nachtrage," p. 1211,—the fruit-measurements of the latter being rather larger. Rehm regards *H. Desmazierii* as described in E. & E. N. Am. Pyr., p. 713, a synonym.

HYPODERMA ROBUSTUM Tubeuf f. **latispora**

On *Abies concolor* (Gord.) Parry; at White Pine, Oreg.; July, 1913; and at Grant's Pass, Sept., 1916. J. R. Weir: *2526, 2542.*

Apothecia hypophyllous, on the midnerve, often its whole length. Asci 8-spored, 90–150 x 30–33 μ. Paraphyses linear, not abundant. Sporidia slipper-shaped, obliquely or quite transversely uniseriate, jelly-sheathed, exclusive of sheath 30–37 x 7–9 μ.

On *Abies amabilis* (Loud.) Forbes; Hood River Co., July, 1923. J. S. Boyce: *1143.* Some of the asci here reach 200 μ in length and the leaves become white throughout.

The type was on *Abies* probably *concolor.* Tubeuf's description, in Studien, op. cit., page 16, and figures, apply well to this material except that his spore-measurements read 30–36 x 3 μ without the jelly covering.

var. **Pini.** On *Pinus monophylla* Torr. & Frem. Minden, Nev.; Sept. 1920; E. Bethel.

Apothecia wider, .5–1 mm., interrupted or continuous the length of the leaf. Asci 2-, 4-, or 8-spored, 135–200 x 28–34 μ. No paraphyses among the mature asci. Sporidia as above.

HYPODERMA DEFORMANS Weir f. **contorta**

On living leaves of the shore pine, *Pinus contorta* Loud., the affected parts becoming yellow or brown and having their limits marked by a transverse dark band. Lookout Mountain, Oreg., Oct., 1921. J. S. Boyce: *829, 830.* Lake Tahoe, Cal.; E. Bethel.

Asci 4- or 8-spored, 150–200 x 30–40 μ, sporidia 60–108 x 6–8 μ, deeply constricted in the middle and septate, usually wider at one end, with jelly-sheath 15–18 μ wide. Paraphyses filiform, not perceptibly thickened at the tip. Witches' brooms, if produced, not noted; one of the twigs in No. *830* shows some hypertrophy.

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The type of this destructive fungus is on *Pinus ponderosa* and is well described by Dr. J. R. Weir in Jour. Agr. Research, May, 1916. He reports the production of witches' brooms on the type species which "may weigh as high as 100 pounds and measure 5 or 6 feet in diameter." Examples taken off witches' brooms on *Pinus edulis,* Mancos, Colo., E. Bethel, had asci reaching a maximum length of 306 μ.

HYPODERMA LINEARE (Peck) de Thuem.

Bifusella linearis (Peck) v. Hoehn.

On old leaves, both green and yellow, of *Pinus monticola* Dougl. Bonner Co., Idaho; Sept., 1922; alt. 2700 ft., J. S. Boyce: *1052. P. Strobus,* Huntingdon Co., Pa., L. O. Overholts: *9245. P. contorta,* Tolland, Colo., E. Bethel.

The type is on *Pinus Strobus* collected in New York State. The Idaho collection has larger fruit, some of the asci reaching 200 μ in length and sporidia 50–70 μ in jelly-sheath of 15 μ. Like the type the two halves of each sporidium are joined by a narrow neck 1 μ thick and the asci lack paraphyses.

HYPODERMELLA NERVISEQUIA (Fries) Lagerberg

On *Abies grandis* Lindl., Bellingham, Wash., Aug., 1913; and Priest River, Aug., 1918; J. R. Weir: *2528, 2530a.* Moscow, Idaho; May, 1922; J. S. Boyce: *1055,* not mature. *A. balsamea,* Timagami, Ont., J. H. Faull.

Apothecia hypophyllous on the nerve; usually more or less interrupted but often confluent the length of the leaf. Measurements of the fruit are stated in the table.

Tubeuf, Lagerberg and Lind have figured this species but their figures do not agree well. My concept of the species, formed with the assistance of Mr. W. W. Diehl, on the text of the writers and European material bearing the label, may be different from that of Fries. Rehm gives the asci 70–100 x 15–20 μ; the sporidia 50–60 x 2–2.5 μ.

HYPODERMELLA ABIETIS-CONCOLORIS ?(Mayr) Dearn.

Apothecia hypophyllous along the midnerve of the leaf, interrupted or continuous for its whole length, 15–38 x .6–1 mm.

Asci cylindric-clavate, contracting ellipsoidally in the distal fifth to a truncate tip, 120–168 x 13–14 μ at base to 18–23 μ wide in the widest part. Paraphyses abundant, as long as the asci, filiform, 1–1.5 μ, not thickened at the tip. Sporidia 66–120 x 3–4 μ thick above, 1–1.5 μ at base, ensheathed in thin jelly-layer. The sulcus on the upper side of the leaf is thickly dotted its entire length with spermogonial pycnidia.

On green and yellowing leaves of *Abies concolor* (Gord.) Parry; Baker Co., Oreg.; alt. 5200 ft.; Oct. 1920. J. S. Boyce: *732*. In Colorado: E. Bethel.

This material agrees well with the figures in Tubeuf's "Studien," page 16, of *Lophodermium Abietis-concoloris*, a *nomen nudum* given by Mayr to a species too immature to describe. I risk the supposition that the material under notice is the same as that figured by these authors.

HYPODERMELLA MACROSPORA (R. Hartig) Lagerberg

This has been reported but I have not seen an American species. It is said to be common on *Abies* and *Picea* in northern Europe.

HYPODERMELLA LARICIS Tubeuf

Priest River, Idaho; Libby, Montana; J. R. Weir. Wasco Co., Oreg.; alt. 4000 ft.; J. S. Boyce: *967*. Barth. F. Col. *5029*.

Western collections on *Larix occidentalis* Nutt. seem to agree well with Tubeuf's description and plate of this species. The asci with 4 large tear-shaped spores in deep jelly-sheath, about 16 μ broad, are characteristic.

HYPODERMELLA SULCIGENA (Link) Tubeuf

On *Pinus flexilis* and *P. contorta;* Colorado, E. Bethel.

HYPODERMELLA MONTIVAGA (Petrak) comb. nov.

Syn.: *Lophodermella montivaga* Petrak Ann. Myc. 20: 191

On living leaves of *Pinus contorta* Loud. Coeur d'Alene, Idaho; J. R. Weir: *10,052* and *10,146*.

Sporidia in this material 34–45 x 3.5 μ where widest near the upper end and 1–1.5 μ at lower end. On some needles in *10,052* there are minute uncolored pustules in which asci with formed sporidia can be found. In several fertile collections on this host in Colorado by E. Bethel and by Hedgcock & Johnston there are no discolorations marking the position of the ascocarps.

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Hypodermella medusa sp. nov.

This, like the last, belongs to von Hoehnel's *Lophodermella.* Apothecia amphigenous, black, 1–3 mm., sometimes confluent or interruptedly confluent up to 30 mm., cleft narrow between the subacute ridge on each side, developing under the epidermis. Asci 8-spored, sessile, wide, 15–18 μ at the base, enlarged upwards, stout-clavate, narrowing ellipsoidally to a thickened truncate tip, 8 μ wide, of variable size,—86 x 24 μ, 143 x 22 μ, 165 x 23 μ,—the longest one observed 176 μ, the widest 29 μ, mostly between 125–150 x 23–26 μ. Paraphyses abundant, narrow, 1.25 μ, ensheathed, longer than the asci, sometimes twice as long, flexed and tangled medusa-like over the top of the asci. Sporidia grumous-hyaline, more than half as long as the asci, in a thick jelly-sheath, 5–9 μ thick, 52–75 μ long. A typical well-developed sporidium exclusive of its sheath is about 30 x 3.5 μ in its upper half and 30 x 1.5–2.5 μ in the lower half,—the contraction being sometimes abrupt near the middle of the spore.

On green and yellowing needles of *Pinus Jeffreyi* "Oreg. Com."; Cisco, Placer Co., Cal.; alt. 5700 ft.; March, 1919. A. S. Rhoads, H. G. Lochmund, and J. S. Boyce: *308.* On *P. ponderosa;* Colorado; July 26, 1917; Hedgcock & Johnston.

Hypodermella ampla (Davis) comb. nov.

On *Pinus contorta* Loud.; Sumpter, Oreg., July, 1913; J. R. Weir: *2520.* Compared with collections by Dr. J. J. Davis on *Pinus Banksiana* Lamb., the paraphyses are longer and more abundant; the distinctly limited whitened portion of the affected leaves and the apothecia are exactly alike. Cfr. *Lophodermium amplum* Davis in Notes on Parasitic Fungi of Wisconsin, 5: 695. Dr. Davis queries whether this may not be in Lagerberg's *Hypodermella. H. sulcigena* on *Pinus silvestris,* collected by Lagerberg, is microscopically similar except that in the latter the sporidia are wider above and obtusely bent near the base. Macroscopically they seem distinct.

LOPHODERMIUM GILVUM Rostrup

On *Pinus austriaca* Hoss.; old stock in a nursery; Washington Co., Oreg.; Feb., 1921. J. S. Boyce: *805.* "The stock was probably imported."—J. S. B.

LOPHODERMIUM PINASTRI (Schrad.) Chev.

On *Pinus* spp. This is the commonest species.

LOPHODERMIUM ABIETIS Rostrup

On *Abies lasiocarpa* (Hook.) and *Picea Engelmanni* Engelm.; J. R. Weir: *6955* and *9175*. On *Picea* sp.; Essex Co., N. Y.; H. D. House.

Saccardo and Rehm omit this but Rostrup and Lind both regard it as a valid species. In Denmark they found it on *Taxus* and *Pseudotsuga* and common on *Abies* and *Picea*. Its asci and sporidia are somewhat shorter than those of *L. pinastri* and its paraphyses are straighter and less thickened at the top.

LOPHODERMIUM LARICINUM Duby

On *Larix laricina* (du Roi) Koch. Lake Timagami, Ont., July 15, 1923; G. D. Darker. Sporidia reaching max. 100 μ in length; paraphyses exceeding the asci and strongly hooked.

LOPHODERMIUM JUNIPERINUM (Fries) de Not.

This species is not rare. It and the form *Cupressi-thyoides* Sacc. are represented in E. & E. N. Am. Fungi No. *999*. What seems to be a similar form was collected by J. S. Boyce in Plumas Co., Cal.; alt., 4500 ft.; June, 1919; on *Libocedrus decurrens* Torr.

LOPHODERMIUM THUYAE Davis

Dr. C. H. Peck collected a specimen in the Adirondacks which he labelled *Hysterium pinastri* var. *Thujae*, unpublished, that seems the same as *L. Thuyae* Davis, described and illustrated in Notes on Parasitic Fungi of Wisconsin, Tran. Wisc. Acad. Sci. 20: 424. It is similar to, but smaller than, *L. pinastri*.

PERIOSPOREAE

Dimerosporium Tsugae sp. nov.

Subiculum of thin branching anastomosing mycelium, 3–4 μ thick, giving a smoky cast to the leaf-surface, hypophyllous. Perithecia gregarious, unappendaged, sometimes with 2 or 3 short rigid mycelioid branches, dark-brown, globose, 75–90 μ; cells of the wall quadrate, 6–8 μ. Asci very variable in shape, battledore-like to cylindric, 36–60 μ long, 12–25 μ wide. Paraphyses? Spo-

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ridia biseriate to conglobate, hyaline, uniseptate, sometimes nucleate in one or both cells, 13–21 x 3½–5 μ, upper cell usually larger.

On leaves of *Tsuga heterophylla* (Raf.) Sarg., Pierce Co., Wash., July 25, 1921. J. S. Boyce: *832*. Also *604* at Sol Duc Hot Springs, Wash.; *699* at McCredie Hot Springs, Wash.; and *1152* in Lane Co., Oreg. Mr. Boyce writes that this species is not on needles of the season, that it is immature on needles a year old and mature only on needles two years old.

A form on *Abies grandis* Lindl., Government Soda Springs, Wash., July, 1920, J. S. Boyce: *584*, so far as it has developed cannot be separated from that on *Tsuga*. No. 832 (J. S. B.) is the type collection. It was compared with the types of *Dimerosporium balsamicola* (Pk.) Sacc. and the latter's similar, *Asterina nuda* Pk. Their subicula are different and their spores much smaller than those of No. *832*.

MELIOLA COOKEANA Speg.

On living leaves of *Callicarpa americana* L., Miami, Fla., March, 1923, L. W. Nuttall.

The asci are mostly 2-spored but some of them are 4-spored. In the latter the sporidia are a very distinct pair of pairs.

Microthyrium Thuyae sp. nov.

Perithecia hypophyllous, scattered, dimidiate, 2–3 per sq. cm., sub-hemispheric then depressed, ostiolate, dark-brown, shining, 100–120 μ, cells of perithecial wall seriate, quadrate, mostly about 5 μ in diameter; exceptionally with a strand or two of brown hyphae attached. Asci fusoid, 30–34 x 8 μ; aparaphysate. Sporidia hyaline, fusoid, 9–11 x 3–4 μ.

On living leaves of *Thuja plicata* Don, not causing noticeable injury. Hood River Co., Oregon National Forest, alt. 3600 ft., July 25, 1923. J. S. Boyce: *1153*.

HYPOCREALES

DOTHIDEA BACCHARIDIS Cke.

Examination of a collection of branches of *Baccharis halimifolia* L. made by Roy Latham, Orient, N. Y., May, 1923, enables me to enlarge the description of *Dothidea Baccharidis* Cke. in Grev. XI: *108* and the addendum in Ell. & Evht., N. Am. Pyr., page 612.

The asci, p. sp., are 120 x 10–11 μ surrounded by long linear paraphyses some of them twice the length of the asci. Most but not all of the sporidia are distinctly larger in the upper cell.

Dothidella Castanopsidis sp. nov.

Stromata .2–.5 mm. in diameter, epiphyllous, dark-brown, erumpent, gregarious, 5–40 centrally clustered on spots which are circular when not confluent, 3–5 mm. in diameter, gray-brown, definitely limited with a wide red-brown border diffusing into the surrounding green tissue. Lower surface of the leaf not visibly altered. Locules 1–5 in a stroma, globose, 75–100 μ. Asci 8-spored, fusoid to sub-clavate, sub-acute at both ends, 45–75 x 9–15 μ. Paraphyses? Sporidia biseriate, or sometimes crowded towards the middle of the ascus, 1-septate, usually arcuate, sometimes straight, 20–27 x 3 ½–5 μ.

On living leaves of *Castanopsis chrysophylla* (Hook.) D. C. Star, Lane Co., Ore., alt. 900 feet, June 22, 1921, and at Rujada, Lane Co., June, 1923. J. S. Boyce: *840, 1178.*

Phyllosticta castanicola E. & E. On the same host and in the same kind of stromata, spores 3–3.5 x 1–1.25 μ, Eula, Lane Co., Ore., June, 1920. J. S. Boyce: *538,* and in Klamath Co., Sept., 1921. J. S. Boyce: *1060.* The describers of this form state in Proc. Acad. Phil., 1895, page 431, "The tough, almost sclerotoid perithecia indicate that this may be the stylosporous stage of some Phyllachora or Dothidaceous fungus."

PHYLLACHORA OXALINA E. & E.

The conidial stage of this species was described in Jour. Myc. III: 41, 1887. Gregarious, minute, tuberculiform pycnidia, bearing stylospores, oblong-fusoid, hyaline, 2-nucleate, then 1-septate, 7–8 x 2–3 μ.

In a colony of *Oxalis stricta* L. in Aug.–Sept., 1923, I found the conidial stage on the leaves, and two months later on the stromatically blackened stems of plants in the same colony, ascigerous locules that I take to be the mature stage of the fungus not hitherto described so far as I know.

Locules sparsely scattered in the blackened cuticle of the stems. Asci 8-spored, fusoid, 40 x 9 μ. Sporidia hyaline, obliquely uniseriate, narrowly elliptic, nucleate near each end, 8–9 x 2.75–3 μ.

London, Ont., Oct.–Nov., 1923. Dearness: *2518* f.

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Rhopographus nucleatus sp. nov.

Stromata elongate, brown, erumpent, .5–4 x .2 mm. Perithecial cells 3–40 in a single series in the stroma, 70–120 μ in diameter. Asci clavate, curved, paraphysate, 55–75 x 10–12 μ. Sporidia hyaline, clavate-fusoid, a large oil-drop, sometimes 3 or 4, in each spore, septate, finally 3 or more obscure septa, 23–28 x 5–8 μ, mostly about 25 x 7 μ.

In dead culms of *Elymus virginicus* L. London, Ont., Sept., 1923. Dearness: *5373*.

SPHAERIALES

ERIOSPHAERIA ALLIGATA (Fr.) Sacc.

An *Eriosphaeria* on decaying Sassafras trunk; Orient, N. Y., Jan., 1923. Roy Latham: *415*. This fungus grew on the rotten wood under the loosened bark. It meets in large part the requirements of the description of *Eriosphaeria alligata* in Syst. Myc. 2: 445 and Syll. 1: 597. It has the yellowish, bi-nucleate, constricted sporidia and the deciduous ostiolum of the flat or umbilicate perithecium. It differs in the perithecia not being distinctly collabescent and possibly in sometimes having a dense subiculum. The most conspicuous feature in this collection is the red, rough, flat surface of the perithecia with the brown hyphal appendages, 200 x 4–5 μ. Asci 75–90 μ; paraphyses numerous, branching, longer than the asci. Sporidia 1-septate; monostichous or in some of the asci sub-biseriate, 15–21 x 4.5–6 μ.

Another collection, at Orient, Feb., 1924, was under the loosened bark of *Sambucus* sp.

ROSELLINIA LIGNIARIA (Grev.)

On bare blackened wood, a *Rosellinia* agreeing well with *ligniaria* except that the asci are only 45–60 μ instead of the usual 75–80 μ of the type. Sporidia 10 x 7 μ. Perithecial bristles 15 to 40 mostly 20 x 4 μ.

Collected at Greenport, N. Y. Roy Latham: *551*.

TEICHOSPORA MAMMOIDES E. & E.

var. **Opuntiae** Dearn. & Barth., var. nov.

On *Opuntia echinocarpa* Engelm., San Bernardino, Cal., Apr. 23, 1923. E. T. Bartholomew.

The type is on *Sarcobatus*. This fine form on *Opuntia*, besides being on a different host, varies from the type in the character of the sporidia which are nearly uniformly 3-septate and constricted at the middle septum.

Lophiostoma Elymi sp. nov.

Perithecia erumpent, carbonaceous, firm, rough, shining, sometimes coalescent, 350–750 μ long, 150–300 μ wide; ostiolum at its best development 170 μ long, 150 μ high. Paraphyses abundant, linear, longer than the asci. Asci stipitate, delicate, fusoid-clavate, mostly 4-spored, sometimes with only 2 developed spores, 60–100 x 7–12 μ. Sporidia hyaline, acute, 1-septate, not appendaged, slightly constricted, uniseriate or sub-biseriate, mostly 4-nucleate, 30–35 x 6–9 μ.

In dead culms of *Elymus virginicus* L. London, Ont.; Sept., 1923. Dearness: *5372*.

L. clavisporum E. & E., also on *Elymus*, has colored 3–5-septate spores.

Mycosphaerella Chenopodii Dearn. & Barth., sp. nov.

Perithecia very thickly scattered, 30 or more per sq. mm., immersed, hemispheric, perforate or briefly ostiolate, black, shining, 80–100 μ. Asci few, aparaphysate, fusoid, 45–55 x 9–12 μ. Sporidia hyaline, uniseptate, slightly constricted, grumous, inequilaterally oblong, ends rounded, 16–21 x 5–6 μ.

On dead stems of *Chenopodium leptophyllum* Nutt.; Stockton, Kan.; June and July, 1923. E. Bartholomew: *8177, 8257*.

PHYSALOSPORA ERRATICA (C. & E.) Sacc.

On dead apple branches, Orient, N. Y., Roy Latham: *969*. If the identification of this collection is right the description in E. & E. N. Am. Pyr., p. 306, may be completed as follows: Perithecia 340 μ, depressed-globose, merely perforating the epidermis and coming off with it. Asci clavate, 150–200 x 15–20 μ.

Anthostomella longispora Dearn. & Barth., sp. nov.

Perithecia scattered, buried under the blackened surface which is minutely ruptured, no pustulation or projecting ostiola to indicate their position, 225–350 μ in diameter. Asci cylindric, 90–

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100 x 8.5–10 μ, weakly paraphysate. Sporidia brown, elongate-elliptic, 21–27 x 5–7 μ.

On decorticated *Populus Sargentii* Dode; Stockton, Kan.; June 25, 1923. E. Bartholomew: *8223.*

DIAPORTHE BINOCULATA Ell. var. **Clethrae** var. nov.

This is distinguished from the type by the larger cinereous disc of the stroma and smaller asci. The latter are 60–75 x 10–12 μ. Sporidia 12–15 x 7–7.5 μ.

On dead stems of *Clethra alnifolia* L. Greenport, N. Y.; April 1923. Roy Latham: *1055.*

EUTYPELLA GLANDULOSA Cke.

Near Orient, N. Y., Roy Latham has collected *Eutypellae* on *Ailanthus, Akebia, Amelanchier, Robinia, Sassafras, Quercus,* and *Vitis* which can hardly be separated except by their hosts. And while they are referred to *Eutypella glandulosa* Cke. this species is separated by rather obscure differences of essential characters from *Eu. deusta* E. & E., *Eu. capillata* E. & E., and *Eu. microcarpa* E. & E. Their sporidia range somewhat under 4 x 1 μ; their asci, perithecia and stromata are similar; and their perithecia impress the wood.

VALSARIA VITICOLA (Schw.) Sacc.

A collection of this species in good fruit on *Vitis vulpina* L. at Stockton, Kan., July, 1923, by E. Bartholomew (*8241*) affords a basis for completing the description quoted in N. Am. Pyr., p. 562.

Stromata irregularly hemispheric, .3–.5 mm.; ostiola obtuse and obscure. Asci cylindric, 95–130 x 9–11 μ; paraphyses linear, equal to or longer than the asci. Sporidia uniseriate, uniseptate, brown, 12–18 x 7–9 μ.

NUMMULARIA DISCRETA (Schw.) Tul.

On *Malus Malus* (L.) Brit., Orient, N. Y., Roy Latham: *1062;* on *Amelanchier,* Warren Co., N. Y., S. H. Burnham: *47;* Stockton, Kan., E. Bartholomew: *8152.*

Dr. Bartholomew writes that this is a very destructive parasite. "It threatens to destroy my domesticated juneberries by attacking them at or below the surface of the ground. The effect is to make

them so brittle that they can be easily snapped off at the ground level."

PHOMATALES

PHYLLOSTICTA GAULTHERIAE E. & E. f. **shallon**

On *Gaultheria shallon* Pursh, Lane Co., Oreg., June, 1923. J. S. Boyce: *1179*.

The type was on *G. procumbens* L. This conspicuous form differs in its pycnidia being epiphyllous only and its spores densely granular and globose, 5–6.5 μ. The spots, .3–1 cm., are pale-brown below and dark-brown above becoming white in the center.

PHYLLOSTICTA CRUENTA (Fr.) Kickx.

"Spots subcircular or oblong, 3–10 mm., nearly blood-red fading out in the center. . . . Sporules oval or elliptical, granulose, 12–15 x 6–9 μ."—Ell. & Evht. Phyllostictas of N. America, p. 70.

Var. PALLIDIOR (Pk.) Davis

N. Y. Mus. Bull. 105: 26. 1905.

Wisc. Ac. Sc. 17: 865. 1914.

Exsic. F. Col. 433, 1336, 4652.

Spores globose or sub-globose, 9–12 μ, on *Smilacina* (*Vagnera*) spp. and *Polygonatum*.

Var. **longispora** var. nov.

Spots with a narrow red border, center pallid to white, becoming deciduous. Pycnidia 150–200 μ, oblong-elliptic or fusiform, rounded at the distal, sub-acute at the proximal end, sometimes rather acute at both ends, 17–24 x 6–9 μ on long conidiophores.

On *Polygonatum biflorum* (Walt.) Ell. Orient, N. Y., Aug., 1923. R. Latham: *1342*.

About twenty of these cruentous collections taken in Canada and five of the States were examined. Three of them on *Polygonatum* are the last named. The common form is var. *pallidior*.

Phoma Akebiae sp. nov.

Pycnidia erumpent, large, 225 μ at base, 200–300 μ high, conical, black, shining. Conidia hyaline, oblong, 4–10 x 2.75 μ mostly 5–6 μ long, thinly ensheathed in mucus, on long conidiophores mostly about 45 x 2 μ, simple or some of them sparingly branched near the base.

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On dead stems of *Akebia quinata* Decaisne, associated with a form of *Schizoxylon Berkeleyanum;* Orient, N. Y.; May, 1923. R. Latham: *1124.*

Phoma Cynoglossi sp. nov.

Pycnidia nearly black, thickly scattered, sub-cuticular, erumpent, perforate, 150–200 μ. Conidia hyaline, oblong, 5–7 x 2.5 x 3 μ.

On dead stems of *Cynoglossum officinale* L. Washington Co., N. Y., May, 1917. S. H. Burnham: *176.*

Phoma spermoides sp. nov.

Pycnidia sub-cuticular, thickly and extensively scattered, dark, small, 80–120 μ, sub-globose, contracted upwards, perforate; wall membranaceous consisting of a single layer of cells averaging 8–9 μ in diameter. Conidia hyaline, sub-allantoid, 3–4 x 2.5–2.75 μ, nucleate at each end.

On dead stems of *Thalictrum* sp.; Orient, N. Y.; March, 1923. Roy Latham: *1130. P. thalactrina* Sacc. has much larger spores.

Macrophoma Oenotherae-biennis sp. nov.

Pycnidia black, hemispheric, thickly scattered, conically pointed and completed with a distinct ostiolum, sometimes depressed, 175–200 μ in diameter. Conidia hyaline, continuous, fusoid or slipper-shaped, grumous and guttate, 21–24 x 5–8 μ, on very short conidiophores.

On dead capsules and stems of the inflorescence of *Oenothera biennis* L.; Orient, N. Y.; Dec., 1922. Roy Latham: *514.*

MACROPHOMA ULMICOLA E. & E. Jour. Myc. 9: 164

M. ulmicola Dearn., Mycologia **9:** 353, is the same species. The publication of the former was overlooked when the latter was published.

Dendrophoma Syringae sp. nov.

Pycnidia thickly scattered, flask-shaped and flat based, coming off with the epiderm which is raised into conical pustules perforated by the short, black ostiola, and leaving pits in the lower stratum of the cortex, .5–.7 mm. wide. Conidia allantoid, hyaline, 4–6.5 x 1–1.5 μ on branched conidiophores 1.5 μ thick making a stratum about 30–45 μ deep.

On dead branches of *Syringa vulgaris* L. Washington Co., N. Y., May, 1817; S. H. Burnham: *174*. Also at Greenbush, N. Y.; H. D. House.

Sphaeropsis Akebiae sp. nov.

Pycnidia thickly scattered in the cortex, raising the cuticle into pustules and perforating it by their ostiola; in section the white lining of sporophores contrasts strongly with the dark wall of the pycnidia which are 170–250 μ in diameter. Conidia pale-brown, mostly obovoid but varying in shape and size,—24 x 9, 21 x 12, 15 x 12 μ.

On dead stems of *Akebia quinata* Decaisne. June, 1923; Long Island, N. Y. R. Latham.

Sphaeropsis Amelanchieris sp. nov.

Pycnidia very thickly scattered, surrounding the branch, pustulate-erumpent, .25–.5 mm. in diameter. Conidia pale-brown, oblong with rounded ends, enucleate, continuous, exceptionally uniseptate, 23–30 x 9–10 μ, on conidiophores 3–4 μ thick. Curved stylospores 15–25 x .5 μ also present.

On dead branches of *Amelanchier canadensis* (L.) Medic Orient, N. Y., Dec., 1923. Roy Latham: *532*.

The conidia are longer and narrower than those of other Sphaeropses on pomaceous hosts with which they were compared.

Sphaeropsis baccharidicola sp. nov.

Pycnidia cortical, closely seriate in lines determined by the fibrovascular strands, rupturing the cuticle, rough, black hemispheric, perforate, sometimes minutely papillate, 300 μ. Conidia brown, obovoid to oblong-elliptic, 18–24 x 9–12 μ on conidiophores 10–12 x 3 μ.

On stems of *Baccharis halimifolia* L. on the same plant with *Dothidea Baccharidis* Cke. Orient, N. Y.; May, 1923. Roy Latham: *1143*.

Sphaeropsis Prosopodis Dearn. & Barth., sp. nov.

Pycnidia in the outer bark which is ruptured but scarcely raised above the minute ostiola, very thickly scattered, 8–12 per sq. mm., circular, depressed, walls thin, 170–225 μ in diameter. Conidia brown, finally dark-brown, oblong-elliptic, of uniform content, variable in size, 15–27 x 9–15 μ, mostly 18–20 x 11 μ.

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On dead branches of *Prosopis juliflora* (Sw.) DC. Wichita Falls, Texas; May 9, 1923. E. Bartholomew: *8062.*

Sphaeropsis Tecomae sp. nov.

Pycnidia as thickly congregated as possible, sometimes thinly scattered, erumpent or exposed through rifts in the bark or small perforations, 300–350 μ in diameter. Conidia oblong-elliptic, brown, 18–22 x 9–10 μ on conidiophores nearly of their own length.

On dead branches of *Tecoma radicans* (L.) Juss. Orient, N. Y., Jan., 1923. R. Latham: *672, 1185.*

Coniothyrium Bartholomaei Dearn. & Barth., sp. nov.

Beginning as a bright orange disc, one to several mm. in diameter and penetrating to the interior cavity of the stem, a depth of 2.5–6 mm., the spot develops into an extensive, yellowish-gray canker reaching 9 x 3 cm. Centers of fructification in concentric arrangement appear as dark spots, 1–3 mm., both externally and in the stem cavity, developing from masses of hyaline hyphae, 3 μ thick, finally throwing off the ectoderm and exposing the single or confluent black masses of conidia and hyphae, 1–2 mm. broad and 1 mm. deep. Between these external layers there are one or more immersed layers of such fructifications up to 3 x 2 cm. in area; the intervening tissue is more or less shrunken and blackened. Conidia brown, globose to sub-elliptic, minutely echinulate, 6–8.5 μ.

On stems of *Yucca Whipplei* Torr. San Bernardino Co., Calif., April 23, 1923. Named in honor of Dr. E. T. Bartholomew, the collector.

. Externally resembling but quite different from *C. concentricum* Sacc.

(?) **Haplosporella rhoina** Dearn. & Barth., sp. nov.

Stromata rather thinly scattered, raising the bark into obtuse, concolorous pustules, .5–1 mm. through base, 100–150 μ high, circular or elongate, immersed in the cortex but not reaching the wood, slaty-black in section. (?) Pycnidia locellate, separated by thin partitions, 15–25 μ thick. Conidia brown, continuous, oblong with rounded ends, 15 x 6–7 μ on long narrow conidiophores, 15–30 μ.

On dead branches of *Rhus glabra* L. Stockton, Kan.; July, 1923. E. Bartholomew: *1293.*

BOTRYODIPLODIA COMPRESSA (Cke.) Sacc. f. **Toxicodendri**

The erumpent, cespitose pycnidia and some of the conidia agree with the description of *Diplodia compressa* Cke. This differs in having mostly constricted conidia some of them remarkably unequal in the size of the two cells that form the spore,—the disparity reaching 15 x 15 μ in the upper and 7–6 μ in the lower cell of the same spore. Some of the spores are, however, non-constricted measuring 21 x 7–8 μ.

On *Rhus Toxicodendron* L. Orient, N. Y., March, 1923. Roy Latham: *962*.

Kellermannia major Dearn. & Barth., sp. nov.

Pycnidia subcuticular, scattered, appearing gray through the yellowish cuticle, no ostiolum, often a dark speck in the center of the disc, .5–.8 mm. in diameter. Conidia hyaline, granular, when fully developed distinctly 3-celled, the median cell about half the size of the terminal ones, nucleate, bearing distally one or two prong-like extensions or aristae, 55–75 x 11–14 μ, aristae 15–18 x 3–4 μ.

On stems of *Yucca Whipplei* Torr.; San Bernardino, Calif., April 23, 1923. Coll. Dr. E. T. Bartholomew.

Hendersonia Grantii sp. nov.

Pycnidia embedded in the tissue between the fibro-vascular bundles of the sheath, dark but obscured by the ectoderm which is not raised into pustules but merely minutely perforated, membranous, 150–175 μ. Conidia elliptic, brown, 1- or 2-, mostly 3-septate, 12–15 x 6–8.5 μ.

On sheaths of *Phragmites* sp.; Langley, Wash.; Feb., 1923. J. M. Grant: *5082*.

Differs from *H. Phragmitis* Desm., which has papillate ostiola, longer spores and larger, brown-banded pycnidia.

CAMAROSPORIUM ASTERICOLUM Ell. & Barth., var. **latispora** var. nov.

The type is on *Aster* stems and has spores 4.5–7 μ wide. This variety is on *Artemisia* and has spores reaching a width of 11 μ. Collected at Langley, Wash., April, 1923, by J. M. Grant: *5093*.

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Dichomera Clethrae sp. nov.

Stromata thickly scattered, cortical, erumpent, bordered by the raised bark and coming off with it leaving no mark on the wood, 340–856 μ in diameter, containing up to 10 or 12 but mostly 5 or 6 conidia-bearing locules. Conidia brown, sub-globose, 3- to 5-septate, mostly about 12 μ in diameter on short conidiophores 2 μ thick.

On dead stems of *Clethra alnifolia* L. Greenport, N. Y., April, 1923. Roy Latham: *1044b*.

Externally like *Steganosporium fenestratum* (E. & E.) Sacc. on the same host.

SEPTORIA ASCLEPIADICOLA E. & E. f. **syriaca**

On *Asclepias syriaca* L. Gatesburg, Pa., Aug., 1923. C. R. Orton, L. O. Overholts: *8753*.

The spots are black-brown above, paler beneath, circular, bounded by a dark ridge. Pycnidia innate, opening above, possibly also beneath, 64–78 μ. Sporules straight or curved; continuous, even, 24–32 x 2 μ.

The type is on *Asclepias incarnata;* the differences may be due to host relations.

SEPTORIA CIRCINATA E. & E.

Syn.: *Septoria curvispora* E. & E. Label on N. A. F. 3720; Proc. Phil. Acad. 1895, p. 434.

(?) *Cylindrosporium acerinum* Tr. & Earle, Proc. Cal. Acad. 1895, p. 732.

(?) *Phleospora curvispora* (E. & E.) Petrak Ann. Myc. **20:** 210. 1922.

Exsiccati: N. A. F. *3270, 3368;* F. Col. *773, 974, 1780, 4477*.

Septoria circinata E. & E. was published in Proc. Phil. Acad. in 1894, p. 367. The study of several ample western collections—J. S. Boyce: *731, 1092, 1164,* etc.—on *Acer circinatum* and *A. macrophyllum* has led to the conclusion that they are this species and that the names listed above or at least the first two are synonyms. The *Acer glabrum* records in my copies of the exsiccati should be *A. circinatum*. The authors of *S. curvispora* (op. cit.) retired it to a mere variety of *S. circinata*. I failed to find

that the type of *Cylindrosporium acerinum* Tr. & Earle is extant; the doubt of its status is based on the description. The co-type of *Phleospora curvispora* seems to me to be *Cylindrosporium consociatum*,—see page 172 of this paper.

Septoria Radiculae sp. nov.

Spots scattered, circular, .5–3 mm. in diameter, white, with diffuse, dark-brown border, slightly or not at all paler beneath. Pycnidia epiphyllous, visible beneath, 2 to 20 on a spot, black, 50–140 μ. Sporules hyaline, continuous, linear, straight or flexuous, 36–45 x 1.5 μ. Many of the spots when held to the light are seen to be partly surrounded by a pale rim simulating the work of a leaf-miner.

On living leaves of *Radicula palustris* (L.) Moench. Southold, N. Y.; Sept., 1922. Roy Latham: *685*.

LEPTOSTROMATALES

Leptothyrium Chenopodii Dearn. & Barth., sp. nov.

Pycnidia black, very numerous, scattered along the valleys between the ridges of the stem, sometimes so thickly as to be confluent, flat, circular, perforate, 70–250 μ in diameter, 80–100 μ high. Conidia sub-hyaline, fuliginous in the mass, minutely rough, elliptic to globose, 5–6 μ.

On *Chenopodium hybridum* L.; Stockton, Kan.; July, 1923. E. Bartholomew: *8259*.

Leptothyrium Lactucae Dearn. & Barth., sp. nov.

Pycnidia evenly and thickly scattered surrounding the stems, circular to elongate, perforate with dark rim, 200 μ in diameter, elongated examples up to 1 mm. Conidia hyaline, elliptic with one or both ends sub-acute, 2- to 3-nucleate, 6–12 x 3–4 μ, mostly about 8 x 3.5 μ, on obtuse conidiophores, 3–10 x 2 μ.

On *Lactuca scariola* L. Stockton, Kan.; June, 1923. E. Bartholomew: *8198*.

Leptothyrium Smilacis sp. nov.

Pycnidia very thickly scattered, rather deeply covered, dark-brown, circular to oblong-elliptic, .3–2 mm. long by .3–1 mm. wide. Conidia hyaline, oblong with acute ends, continuous, 6–12 x 3 μ on conidiophores up to 12 μ in length.

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On twigs and branchlets of *Smilax rotundifolia* L. Orient, N. Y.; Feb., 1920. Roy Latham: *1339*.

Piggotia depressa sp. nov.

Pycnidia sub-cuticular, black, hypophyllous, scattered, cespitose or stromatic, perforate, 80–120 μ. Spores hyaline, continuous, straight, or slightly curved, 2–3 x 1 μ.

Associated with, probably a spermatoid stage of, *Fusicladium depressum* (B. & Br.), on living leaves of *Angelica Lyallii* S. Wats.; Alpine, Mont., Aug., 1921; E. Bartholomew: *7339;* also on *A. atropurpurea* L. London, Ont. Dearness: *329*.

Leptothyrella Lathami sp. nov.

Pycnidia black, circular to elongate, .1–1 mm., thickly scattered, erumpent through a thin layer of wood fibers, rough. Conidia hyaline, oblong with rounded ends, 1-septate, 6–9 x 2.5–3.25 μ on long loosely branching conidiophores up to 100 x .75 μ.

On decorticated *Robinia Pseudo-Acacia* L. Orient, N. Y.; Feb., 1923. Roy Latham: *986*.

Leptothyrella Robiniae Dearn. & Barth., sp. nov.

Pycnidia erumpent, thickly scattered, sometimes several confluent simulating stromata, perforate, 100–300 μ in diameter. Conidia hyaline to amber-colored, uniseptate, oblong-elliptic, constricted, 9–11 x 3 μ on obscure conidiophores or sessile.

On dead young twigs of *Robinia Pseudo-Acacia* L. Stockton, Kan.; July, 1923. E. Bartholomew: *8254*.

The inner cortical layer subjacent to the fungus is usually aeruginous.

Leptostromella Panici sp. nov.

Pycnidia minute, 50–250 x 50 μ, innate, amphigenous but more numerous on the upper side, close together in lines between the veins. Conidia hyaline, linear oblong, 18–22 x 2.75–3 μ, 3-septate, on short conidiophores.

On living and languishing leaves of *Panicum hians* Elliott. Orangeburg, S. C.; Aug. 15, 1905. R. Latham: *667*.

Externally similar to *L. septorioides* S. & R.

Phragmopeltis Phragmitis sp. nov.

Stromata linear, becoming black, emergent through a hysteroid cleft exposing the indistinct locular stomata, .5–2 x .175 mm. Locules in a single series, 140–170 μ in diameter. Conidia tardily fuliginous or darker, oblong with rounded ends, often sub-clavate, 3-septate, uniform or nucleate between the septa, 20–30 x 4.5–5 μ, on conidiophores 15 x 2.5–3 μ.

On dead culms of *Phragmites* sp. Langley, Wash.; Feb., 1923. J. M. Grant: *5082*.

MELANCONIALES

Gloeosporium Betulae-papyriferae Dearn. & Overh., sp. nov.

Spots circular, 3–15 mm., becoming confluent, on the upper side the chocolate-brown central part surrounded by a gray-brown region and completed by a darker margin, 1–1.5 mm. wide, on the lower side uniform butternut brown. Acervuli hypophyllous, blister-like, yellowish, irregular, circular or angular, 50–500 μ. Spores hyaline, oblong, 3.5–5 x 1.75–2 μ.

On living leaves of *Betula papyrifera* Marsh. Lamar, Pa.; Sept., 1922. L. O. Overholts: *8710*.

This is different from any of the other five *Gloeosporia* inhabiting *Betulae*, seeming nearest *G. betulicola* Sacc. & Dearn. which has larger spores.

Gloeosporium Chamaedaphnis sp. nov.

Spots epiphyllous, numerous, circular, scattered, brown, .5–3 mm. Acervuli circular or irregular, epiphyllous, black, 1–20, mostly 2–3 on a spot, 80–200 μ. Conidia hyaline, fusoid to limoniiform, 15–18 x 7–9 μ.

Conspicuously mottling the living leaves of *Chamaedaphne calyculata* (L.) Moench. London, Ont.; Oct., 1910. Dearness: *3405*.

Gloeosporium hysterioideum Dearn. & Barth., sp. nov.

Spots large, irregularly circular, becoming confluent and finally covering most of the leaf, amphigenous, livid-arid above and pale-brown beneath, average 1.5–2 cm., lacking definite border and having a paler central area of 5–8 mm. in which the acervuli appear. Acervuli epiphyllous, visible on the lower side when the leaf is held

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towards the light, amber colored, sub-circular, 80–500 μ in diameter, raising the cuticle and hysteroidally rupturing it. Conidia hyaline, globose to pyriform, 15–21 x 13–15 μ on short conidiophores 4–5 μ thick, often accompanied by bacillar conidia, 4–8 x 1.5 μ, on thinner basidia. In some of the more recent spots only the latter form was found.

On living leaves of *Acer saccharum* Marsh. Near Cincinnati, Ohio; Sept., 1922. E. Bartholomew: *7861.*

Gloeosporium Lathami sp. nov.

Spots 4–7 mm. becoming confluent, not definitely bordered, generally following the veins of the leaf, yellow-brown, quite pale on the lower side of the leaf but plainly visible if held to the light. Acervuli numerous, dark, covered by modified leaf-cells, epiphyllous, 90–250 μ in diameter. Spores hyaline, bacillar, 2.5–3 x 1–1.25 μ.

On living leaves of *Quercus stellata* Wang. Orient, N. Y.; Sept., 1817. Roy Latham: *829.* "Conspicuous in the fall; one tree in the center of a wood was covered with it."—R. L.

Gloeosporium Osmaroniae sp. nov.

Maculae amphigenous, mostly epiphyllous, scattered, brown with darker border, turning arid or whitish in the center or mottled with small white spots, sub-circular to triangular, taking shape from the limiting veinlets, reaching 15–8 mm. Acervuli pale, becoming brown on the arid areas, amphigenous but mostly epiphyllous, 90–200 μ. Conidia hyaline, grumous or guttate, 5–7.5 x 3–3.5 μ.

On leaves of *Osmaronia cerasiformis* (T. & G.) Greene. Seattle; Aug., 1892. C. V. Piper.

Myxosporium alboluteum Dearn. & Barth., sp. nov.

Acervuli seriate to thinly scattered, large, .5–2 mm. in diameter at base, .3–.4 mm. high, erumpent, an inner covering layer of blackened cells under the finally loosened cuticle. Conidia issuing in egg-yellow masses, hyaline, elongated-elliptical to fusoid, mostly 2-nucleate, 12–24 x 4–5 μ on conidiophores 10–30 x 2.5 μ.

On dead bark of *Populus Sargentii* Dode. Stockton, Kan.; July, 1923. E. Bartholomew: *8266.*

Myxosporium Oenotherae sp. nov.

Acervuli reddish-brown, circular to elliptic, thickly scattered and intermingled with *Macrophoma*, circular forms 200–300 μ, elongated ones 300–500 μ, perforate centrally or often with more than one perforation or a short slit. Conidia hyaline, elliptic, acute at the ends, 6–11 x 3 μ.

On dead capsules of *Oenothera biennis* L. Orient, N. Y.; Dec., 1922. Roy Latham: *514*.

Myxosporium Tiliae sp. nov.

Acervuli sub-cuticular, raising the cuticle into circular or irregular oblong blisters, .5–2.5 mm. Conidia olivaceous in the mass, hyaline, oblong-elliptic, 9–10 x 3–4 μ.

On dead branchlets of *Tilia americana* L. Hudson Falls, N. Y.; March, 1915. S. H. Burnham: *19*.

Quite distinct from *M. fumosum* E. & E. on the same host.

Myxosporium stellatum sp. nov.

Acervuli dark gray, raising the cuticle in usually broadly elliptic flat elevations and rupturing it in a stellate or lacerate manner, .5 mm. in diameter. Conidia hyaline, straight or slightly curved, narrowed at the ends, 7–10 x 1.5 μ.

On dead twigs of *Quercus velutina* Lam. Cohoes Falls, N. Y.; March, 1910. S. H. Burnham: *80*.

Colletotrichum fusarioides (Ell. & Kell.) O'Gara comb. nov.

Three different collections of leaves and follicles of *Asclepias syriaca* L. were found to bear a fungus agreeing with the descriptions of:

Gloeosporium fusarioides E. & K. Jour. Myc. **1**: 3. 1885.

Gloeosporium Moellereanum Thuem. var. *folliculorum* Sacc. Syll. 18: 458. 1906.

Colletotrichum salmonicolor O'Gara, Mycologia **7**: 40. 1915.

The marginal setae are scanty and indeed not commonly present, therefore the fungus will be sought as often under *Gloeosporium* as *Colletotrichum*. Doubtless the above names may be added to the list of synonyms of the conidial forms of *Glomerella cingulata* (Stonem.) Sp. & v. Schrenk given by Shear and Wood in Bull. 252, Bureau of Plant Industry, 1913.

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Septogloeum Celtidis sp. nov.

Spots angular, 1–3 mm., becoming extensively confluent, dull-brown beneath, gray-brown on the upper side. Acervuli innate, hypophyllous, orange in the center, surrounded by a raised rim of the leaf tissue, numerous on the spot mostly about 250 μ. Sporules hyaline, straight or flexuous or most frequently more or less strongly curved, continuous or 1- to 3-septate, 15–33 x 3–3.5 μ.

On leaves of *Celtis occidentalis* L. Orient, N. Y.; Oct., 1919. Roy Latham: *83*.

Rhopalidium cercosporelloides sp. nov.

Spots indefinite, the affected parts of the leaf turn reddish-brown on the upper side and tawny beneath, paler when held to the light than the surrounding tissue. The acervuli discharge yellowish masses of spores chiefly on the upper side which when acted upon by moisture become white flakes, .5–1 mm., suggesting *Cercosporella*. Sporules hyaline, straight, elongated-clavate, one portion grumous-guttate, 1- to 2-septate, 4–6 μ thick, 30–40 μ long, the remaining portion variously prolonged and attenuated even to 100 x .5 μ. Conidiophores 10–50 x 1–1.5 μ.

On living leaves of *Spiraea Menziesii* or *corymbosa*. Priest River Expt. Sta., Bonner Co., Idaho; Sept. 22, 1922. J. S. Boyce: *1040*.

Scolecosporium pedicellatum Dearn. & Overh., sp. nov.

Acervuli erumpent to cupulate, black, thickly scattered, .5–.75 mm. Conidia sub-elliptic, mostly inequilateral owing to slight curvature, 4 brown cells and 2 hyaline end cells, the distal cell a short, somewhat oblique, conic beak, 3–6 μ long, the proximal one similar, usually longer, the brown portion 18–25 x 7.5–10 μ, obliquely adnate to hyaline, simple or branched conidiophores, 38–75 x 2 μ.

On bark of living apple tree injured by cicadas, Mont Alto, Pa.; March, 1923; C. R. Orton. L. O. Overholts: *8657*.

TOXOSPORIUM CAMPTOSPERMUM (Peck) Lind

?*Pestalozzia camptosperma* Peck. 1886

Coryneum bicorne Rostr. 1899

Parasitic on leaves of *Abies grandis* Lindl. Multnomah Co., Oreg. J. S. Boyce: *1140*.

Coryneum cinereum sp. nov.

Acervuli amphigenous, appearing as small grayish stains, .5–1 mm., tardily raising and rupturing the cuticle. Conidia brown, oblong, sometimes wider above, uniformly 4-celled, 21–24 x 6–9 μ, wall 1.5 μ thick, on hyaline conidiophores, 15–40 μ long.

Parasitic on the older needles of *Pinus contorta* Dougl. Deschutes National Forest, Klamath Co., Oreg.; Sept., 1921. J. S. Boyce: *828*. On *Pinus Murrayana* Balf.; Tolland, Colo., Aug., 1910; Prof. Bethel.

Coryneum thujinum sp. nov.

Acervuli hypophyllous, black, scattered, emergent, the ruptured cuticle being raised like a lid on one side, .3–.5 mm. in length. Conidia brown, somewhat curved, the upper third bent inward at a wide angle, 7- to 10-septate, end cells pale, 40–50 μ, mostly about 45 x 6–8 μ on conidiophores of about half their length.

On dead leaves of *Thuja plicata* Don. Cascade National Forest, Lane Co., Oreg.; alt. 12,000 ft.; Oct. 22, 1921. J. S. Boyce: *831*. Also at McCredie's Hot Springs, Oreg. "This species is parasitic."—J. S. B.

Hyaloceras Hamamelidis sp. nov.

Acervuli thickly scattered, cortical, rupturing the epidermis, circular, 70–200 μ or irregularly elongate up to 1 mm. Conidia brown, 5-septate, 18–26 μ, mostly about 24 x 9–11 μ with a hyaline boss at each end terminated by a curved hyaline cilium 6–11 μ.

On dead trunks of *Hamamelis virginiana* L. Near London, Ont., May, 1912. Dearness: *3971*.

Cylindrosporium brevispina sp. nov.

Spots amphigenous, 1–4 mm., reddish, turning brown, paler beneath, angular becoming confluent especially along the edges of the leaves. Acervuli hyophyllous, numerous, large, 80–220 μ, finally becoming marked depressions or cavities in the leaf-tissue. Sporules 30–90 μ, mostly about 45–50 x 3–4 μ, grumous-guttate, subclavate, continuous to 3-septate.

On living leaves of *Crataegus Douglasii* Lindl. (*brevispina* Dougl.). Sidney, B. C.; Sept., 1914; John Macoun: *47*. Missoula Mont., 1917; J. R. Weir; *9034*. Trinity Forest, Cal.; June, 1914; J. S. Boyce: *793*.

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This fungus was treated as a var. of *C. Crataegi* E. & E., Mycologia 8: 105. Subsequent comparison with the type and study of additional collections warrant the raising of the variety to a species.

Cylindrosporium consociatum sp. nov.

Spots angular, usually limited by veinlets and often partly or wholly surrounded by a narrow pallid rim, reddish-brown above, beneath duller in color and usually made gray by the numerous pycnidia of *Phyllosticta minutissima* E. & E., 2–8 x 2–4 mm. Acervuli epiphyllous, scattered, often indicated by cirrhi or flakes of exuded spores, 80–100 μ in diameter or confluent along a vein or often irregular depressions overlying a vein. Sporules hyaline, straight, flexuous or curved, 1- to 4-septate, 35–60 x 2–2.25 μ, exceptionally 75–80 μ long.

On living leaves of *Acer glabrum* pretty constantly associated with a minute *Phyllosticta,* hence the specific name. Priest River, Idaho, Sept., 1922; J. S. Boyce: *1034, 1035, 1175.* Two collections at Vernon, B. C. Also at Newport, Wash. A. S. Rhoads (J. R. Weir: *16,894*). Exsiccati: F. Col. *1244, 2251* labelled *Phyllosticta minutissima* E. & E.

Phleospora curvispora (E. & E.) Petrak—see note under *Septoria circinata* E. & E.—was based on part of the Newport collection. The fungus on other leaves of this collection received from Dr. Weir do not seem to be separable from *C. consociatum.* The irregular acervuli and most of the others examined do not seem to possess what might be called a pycnidial wall.

CYLINDROSPORIUM NUTTALLII (Hark.) comb. nov.

Syn.: *Septogloeum Nuttallii* Hark. Calif. Acad. Sci., Feb., 1884, p. 13.

Cylindrosporium conservans Peck, N. Y. Mus. Bull. 150: 53. 1910.

Exsiccati: F. Col. *3315, 4414.*

Since the publication of the note on *Septogloeum Nuttallii* in Mycologia 9: 357, I have examined co-types of the latter and *Cylindrosporium conservans* erroneously published on *Salix,* and find them the same species. Both co-types are on *Osmaronia cerasiformis* (T. & G.). Good collections were made at Lake Chelan by

J. R. Weir and at Rainier by J. S. Boyce on *Osmaronia*. Mr. Boyce found it also on *Prunus demissa* in MacLeay Park, Portland, Oreg.

Cylindrosporium Urticae sp. nov.

Spots numerous, scattered, small, about 2 mm. unless confluent, quadrate, not bordered, translucent. Acervuli 85–100 μ, several on each spot, watery-looking depressions, visible from either side of the leaf. Conidia filiform, continuous, flexuous, 33–45 x 2–2.25 μ.

On living leaves of *Urtica Lyallii* S. Wats. Langley, Wash.; Sept., 1923. J. M. Grant: *6746*.

HYPHOMYCETES

BOTRYTIS RILEYI Farl.

Rept. U. S. Commissioner of Agriculture, 1883, p. 121

On the clover looper—*Plathypena scabra*—Orient, N. Y., Sept., 1922. Roy Latham: *572*. Determination confirmed by Dr. Roland Thaxter. "This fungus killed thousands of larvae on beans this season (1922)."—R. L.

Coniosporium subcorticale Dearn. & Barth., sp. nov.

Under the loosened bark in small cumuli or crowded or scattered along lines between the fibers of the cortex and particularly around and upon the stromata of a *Diaporthe*. Spores brown, sub-globose, 6–9 x 5.5–7 μ.

On dead branches of *Celastrus scandens* L. bearing *Diaporthe celastrina* Dearn. & Barth. Madison, Wisc.; Aug. 26, 1919. E. Bartholomew: *6651*a.

Trichosporium Falcatae Dearn. & Barth., sp. nov.

Mostly hypophyllous imparting to the lower side of the leaf a sooty-brown coating and darkening the upper surface of the affected parts. Main lines of hyphae up to 9 μ in thickness spread over the surface, climb up the trichomes and gives off fertile branches 15–40 x 3.5–4 μ upon the distal third or more of which conidia are crowded. Conidia pale-brown, continuous, narrowly elliptic, somewhat catenate, slightly narrower at the lower end, often nucleate, 7–11 μ, mostly 8–9 x 3–3.5 μ.

Parasitic on living leaves of *Falcata Pitcheri* (T. & G.) Kuntze. Longview, Texas; Oct. 1, 1921. E. Bartholomew: *7536*.

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Trichosporium pinicolum Dearn. & Barth., sp. nov.

Hyphae smoky-hyaline, branching, 1.5–3 μ thick, obscured by the black masses of conidia, 2–4 mm. across. Conidia black, sessile, lenticular, 15–18 μ long, 10–15 μ broad, 8–12 μ thick.

On bark of fallen limbs of *Pinus monticola* Dougl. Placeville, Idaho; Aug. 21, 1917. L. M. Benbow. J. R. Weir: *9071*.

(?) **Cladosporium Salicis-sitchensis** Dearn. & Barth., sp. nov.

Spots on the upper side of the leaf dark-brown, angular, irregular, 2–10 mm., surrounded in the early stages by diffuse, indefinite, pale-red areas of variable width; on the lower side of the leaf they show as sooty areas in the dense pubescence. Hyphae hypophyllous, brownish, sparingly branched, .2–1 mm. long by 3–5 μ thick. Conidia smoky-hyaline, solitary or shortly catenate, oblong-elliptic, 8–28 x 5–10 μ, average about 15–5.5 μ.

Producing conspicuous discolorations on living leaves of *Salix sitchensis* Sanson. Olympia, Wash.; Sept., 1912. E. Bartholomew: *4933*. Langley, Wash.; Nov., 1922. J. M. Grant: *5011*.

Helminthosporium stromatoideum sp. nov.

On tubercular or stroma-like bases scattered over the branches, .2–.4 mm. in diameter. Conidia in well-developed examples thickly congregated over the base, 8- to 20-septate, widest in the middle where they reach 12 μ and gradually reduced to 6–8 μ at each end, 100–160 μ long, the median septa about 12 μ apart.

On dead branches of *Tsuga canadensis* (L.) Carr. Hudson Falls, N. Y.; Feb., 1915. S. H. Burnham: *22*.

Stigmella Nemopanthis sp. nov.

Fertile hyphae hyaline, very short, 6–15 x 4–5 μ, septate. Aggregations resembling blackberries under the low power break up by the slightest movement of the cover-glass into separate, dark-brown, sub-circinately muriform conidia, 20–35 x 20–25 μ, the cells mostly 4–6 μ wide, suggesting under the high power a minute, compacted *Helicoma*.

Appearing as a sooty sprinkling on the bark of dead branches of *Nemopanthes mucronata* (L.) Trel.; June, 1915. Dearness: *3825*.

Cercospora Ichthyomethiae Dearn. & Barth., sp. nov.

Spots begin as small gray, circular discs, 2–5 mm. in diameter, extending in areas between the veins of the leaf; the original circular spots persist as pale discs in the large, dark-drab areas, all marked by a distinct reddish-brown border, .5 mm. wide; the colors similar but duller on the lower side of the leaf. Fascicles of short, sparingly branched, brown, fertile hyphae, 5–30 x 3–4 μ arise chiefly but not solely on the upper side of the leaf from dark-brown tubercles mostly 50–80 μ in diameter. Conidia brown, obclavate, 1- to 4-septate, 15–60 μ, mostly 25–45 x 3–4 μ in the widest part reducing to 1.5 μ at the tip. An immature *Sphaeria*, probably related, among the tubercles.

On living leaves of *Ichthyomethia piscipula* (L.) A. Hitchc. Miami, Fla.; March, 1923; L. W. Nuttall.

Dendrostilbe Ulmi sp. nov.

Stipes brown, erumpent, single or in small clusters, 1 mm. high, .25 mm. thick, surmounted by a yellow sub-globose capitulum bearing branched conidiophores, branches 15–40 x 1 μ. Conidia hyaline, oblong, 4–6 x 2.5 μ.

On dead limbs of *Ulmus americana* L. Hudson Falls, N. Y.; June, 1916. S. H. Burnham: *127*.

Atractilina Dearn. & Barth., gen. nov.

Fertile hyphae collected into a stalk bearing at the summit elongated, spindle-shaped, septate, hyaline conidia, singly and in chains.

Between *Atractium* and *Symphyosira* in *Stilbaceae*.

Atractilina Callicarpae Dearn. & Barth., sp. nov.

Spots reddish, indefinite, rust-like, scattered, numerous, 2–4 mm. Synnema gregarious on the spots, fibrous, .5–.75 mm. in height and 50–75 μ in thickness, conspicuously tufted or brush-like in the upper fourth of their length. Conidia weakly catenate or single, spindle-shaped, hyaline or dilutely colored, continuous or 1- to 4-septate, mostly 3-septate, the main portion 25–30 x 5–7 μ, gradually contracting into a narrow stipe-like part 12–15 μ long.

On *Callicarpa americana* L. Miami, Fla.; March 15, 1923; L. W. Nuttall.

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Tuberculina flavogranulata Dearn. & Barth., sp. nov.

Spores hyaline, broadly elliptic, 6–9 x 5–6 μ, borne acrogenously on fasciculate hyphae, 3–4 μ in diameter. Many of the latter are modified distally into sub-clavicular, spore-like portions, 10–12 x 3 μ. The yellowish sporodochia with hyphae and spores vary in size from mere globose specks to irregular masses nearly 1 mm. in diameter giving the lower side of the leaf the appearance of having been sprinkled with cornmeal.

Parasitic on *Uromyces Hedysari-paniculata* (Schw.) Farl. on living leaves of *Meibomia paniculata* (L.) Kze. Spiro, Okla.; Oct. 12, 1921. E. Bartholomew: *7623*.

LONDON, ONTARIO.

THE MICROTHYRIACEAE OF PORTO RICO

RUTH W. RYAN

The Microthyriaceae of Porto Rico are numerous and constitute an interesting part of the fungus flora, though heretofore little or no study has been made of them. They are in distribution practically like *Meliola: i.e.*, limited to native plants and to the higher and wetter altitudes, and appear therefore to be historically of similar relation. So little is known of the Microthyriaceae that no generalizations are yet possible regarding the origin of this group. The forms of Porto Rico in general show less diversity than those of Hawaii, most of them belonging to such well known genera as *Asterina* and *Morenoella*.

Some of the species agree sufficiently with printed diagnoses to warrant the assumption that they are co-specific with previously described forms, while others must be regarded as new species or even as belonging to new genera.

The taxonomy of this group as based on the morphology of the forms previously known is summarized in two extensive articles, one by Theissen and Sydow (1), and the other by G. Arnaud (2).

The system of Theissen, based as it is so largely on spore septation and color, is distinctly artificial in character, while that of Arnaud is based on more fundamental morphological characters, though lacking, of necessity, in ease of application. The pertinent portion of Theissen's key is reproduced.

The material used in this study consisted of specimens collected by Dr. F. L. Stevens in Porto Rico during the years 1913, 1914, and 1915.

1. **Theissen, F., Sydow, H.** Synoptische Tafeln. Ann. Myc. **15**: 413. 1917.
2. **Arnaud, G.** Les Asterinées, Annales de l'Ecole Nationale d'Agriculture.

Key to the Genera of Porto Rican Microthyriaceae. Adapted from Theissen

Free mycelium absent..... Microthyrieae.
Perithecia round.
Spores 2-celled, brown.

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Perithecia single.....1. *Seynesia* Sacc. 7.
Spores 2-celled, hyaline.....2. *Microthyrium* Desm. 4.
Free mycelium present..... Asterineae.
Perithecia round.
Spores hyaline, 2-celled.
Hyphopodiate.
Perithecia not setose.....3. *Caudella* Syd. 3.
Non-hyphopodiate .....4. *Calothyrium* Th. 4.
Spores 2-celled, brown.
Hyphopodiate.
Paraphysate .....5. *Asterina* Lév. 5.
Aparaphysate .....6. *Englerulaster* v. Höhn. 6.
Non-hypopodiate .....7. *Asterinella* Th. 1.
Perithecia linear.
Asci 8-spored, 2-celled.
Spores hyaline, aparaphysate...8. *Aulographum* Lib. 12.
Spores brown.
Hyphopodiate.
Paraphysate .....9. *Lembosia* Lév. 8.
Aparaphysate .....10. *Morenoella* Speg. 9.
Non-hyphopodiate.
Paraphysate .....11. *Echidnodes* Th. and Syd. 10.
Aparaphysate .....12. *Echidnodella* Th. and Syd. 11.

1. SEYNESIA Sacc. Syll. Fung. **2**: 668

Seynesia coccolobae n. sp.

Perithecia round, radiate, carbonaceous, 672–1200 μ in diameter, hypophyllous, scattered, few colonies 1–1.5 mm. in diameter. Margin irregular, but not fimbriate, free mycelium lacking. Asci spatulate, 19–21 x 84–96 μ, paraphyses hyaline, filiform, equal in length to the asci, tips globular. Spores hyaline becoming dark, 7–9 x 19 μ, 2-celled.

On *Coccoloba laurifolia.* No. 7611; Arecibo and Lares road, no. 7292; Maricao, no. 813.

Seynesia cordiae n. sp.

Perithecia is poorly invert radiate, superficial, 150–240 μ in diameter, some are nearly linear, margin irregular. Internal mycelium hyaline. Paraphyses filiform, often indistinct. Asci 17 x 34 μ, spatulate to oval; spores 2-celled, brown when mature, 3.5 x 10 μ. Fungus on the lower surface of the leaf, completely covering it.

On *Cordia sulcata.* College grounds, Mayaguez, no. 975.

2. MICROTHYRIUM Desm. Ann. Sc. Nat. **15**: 138. 1841

Microthyrium calophylli n. sp.

Perithecia round, carbonaceous, 224–336 μ in diameter. Free mycelium lacking. Asci 9.6 x 62 μ, clavate. Paraphyses filiform, numerous, as long as the asci. Spores hyaline, 2-celled, slipper shaped, the superior cell broader and longer, 5 x 14 μ.

On *Calophyllum* sp. Maricao, no. 881.

3. CAUDELLA Syd. Ann. Myc. **14**: 90. 1916

Caudella psidii n. sp.

Perithecia round, ostiolate, carbonaceous, margin fimbriate, 280–391 μ in diameter. Mycelium brown, 5 μ thick, septate, much branched, anastomosed or fasciculated, non-hyphopodiate. Asci 96–120 x 19–24 μ, spatulate, paraphysate. Spores 2-celled, the inferior gradually tapering into a stalk, 12–14 x 36–48 μ, the superior cell 12–14 x 19 μ, the inferior cell 9 x 24 μ, hyaline. The fungus forms gregarious spots on the leaf 3–5 mm. in diameter, discoloring the leaf.

On *Psidium guajava*. Rio Tanamá, no. 7834; Mayaguez, no. 3899; Las Marias, nos. 8128, 2899; Dos Bocas, below Utuado, no. 6562; San Sebastion, no. 5202.

4. CALOTHYRIUM Th. Ann. Myc. **10**: 160. 1912

Calothyrium psychotriae n. sp.

Perithecia 112 μ in diameter, round, carbonaceous. Mycelium grey-brown, 5 μ thick, crenulate. Asci nearly round, 12 μ in diameter, embedded. Spores 2-celled, hyaline, 2 x 5 μ.

On *Psychotria* sp. Preston's ranch, no. 6662 (type).

Calothyrium hippocrateae n. sp.

Perithecia round to slightly oval, 84–96 μ in diameter; distinctly radiate throughout, vertically dehiscent, smoky brown. Mycelium superficial septate, greatly branched, non-hyphopodiate, 2 μ thick, light brown. Asci ovate with thickened apex, 14 x 17–19 μ. Spores 2 x 12 μ, equal celled, hyaline.

On *Hippocratea volubilis*. No data.

Calothyrium ingae n. sp.

Perithecia 108 μ in diameter, round, light brown, distinctly radiate. Mycelium light brown, 3 μ thick, non-hyphopodiate. Asci

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round to ovate, 14 x 17 or 14 μ in diameter, aparaphysate. Spores hyaline, 2-celled, 2 x 12 μ. The fungus is found on the lower surface of the leaves.

On *Inga vera.* No data.

5. ASTERINA Lév. Ann. Sc. Nat. III, **3:** 54. 1845

Asterina genipae n. sp.

Perithecia round, distinctly radiate, black-brown, 192 μ in diameter, edge irregular. Mycelium light brown, 5 μ thick, much branched. Hyphopodia alternate, sessile, 5–7 x 5 μ. Asci oval, 41 x 58 μ, embedded in tissue, aparaphysate, 8-spored. Spores brown, 14–16 x 29–36 μ.

On *Genipa americana.* Mayaguez, no. 1861 (type).

Asterina drypetis n. sp.

Perithecia gregarious, forming spots .5–2.5 cm. Perithecia round, carbonaceous, radiate, ostiolate, margin irregular, 127–426 μ in diameter. Mycelium dark brown, 9 μ thick. Hyphopodia lobed, straight to slightly beaked, 10 x 22 μ, 1-celled. Asci embedded, 29–36 x 38–43 μ. Spores 2-celled, heavy walled, 10–12 x 28–31 μ.

On *Drypetes* sp. Rio Tanamá, no. 7481 (type).

Near *Asterina dispar,* but differs from it in having regularly septate spores, larger perithecia and mycelium, and smaller asci and spores.

ASTERINA INAEQUALIS var. NODULOSA Speg. F. Puig. no. 353.

On *Rubiaceae.* Monte de Ora, no. 5668a; on *Hirtella triandra.* Arecibo-Lares road, no. 7303.

ASTERINA VAGANS Speg. F. Guar. 2, no. 127.

On *Tournefortia laurifolia.* Mayaguez, no. 7079. The fungus agrees with the description given in the above citation.

Asterina fawcetti n. sp.

Perithecia 190–264 μ in diameter, carbonaceous, ostiolate, mycelial hyphae of perithecia closely united, margin wavy. Mycelium brown, 5 μ thick. Hyphopodia sessile, alternate, hemispherical, 1-celled, 5 x 7 μ. Asci ovate, aparaphysate, 24–48 x 51–65 μ. Spores 2-celled, 9–12 x 29–31 μ, brown when mature, heavy walled and equal celled.

On *Eugenia buxifolia.* Vega Baja, no. 7713 (type); on *Eugenia* sp. Mona Island, nos. 6151, 6160, 6163, 6155.

Near *Asterina chrysophylli.* The hyphopodia and asci are smaller and the spores are narrower.

Named in honor of G. L. Fawcett, because of his work on the Porto Rican fungi.

Asterina sidicola n. sp.

Perithecia black, radiating, edge incised, 123–156 μ in diameter. Mycelium brown, tortuous, 5 μ thick. Hyphopodia alternate, sessile, lobed, 7 μ long. Asci elliptical to ovate, 10–12 x 31–33 μ, aparaphysate, 8-spored. Spores 2-celled, rough walled, brown, 5 x 12–14 μ.

On *Malvaceae.* Jajome Alto, no. 5693 (type); on *Sida* sp. Rosario, no. 4809; on *Malvaceae.* No. 6663a; on *Sida carpinifolia.* Maricao, no. 8869; Vega Baja, no. 401; on *Corchorus hirtus.* Rio Tanamá, no. 7877; on *Abutilon* sp. Jajome Alto, no. 5642.

Asterina hippocrateae n. sp.

Perithecia 96–104 μ in diameter, radiate, round, dark-brown. Mycelium brown, septate, much branched, 7 μ thick. Hyphopodia alternate, sessile, 12 x 14–19 μ, with a hyaline central spot. Asci ovate, 26–38 x 36–45 μ, aparaphysate. Spores brown, 2-celled, heavy walled, smooth, elliptical, each cell containing a hyaline vacuole, spores 14 x 31 μ.

On *Hippocratea volubilis.* Martin Pena, no. 9296 (type). Also on the same host collected at Vega Baja, nos. 7726, 9296a.

Asterina miconiae n. sp.

Perithecia black, margin irregular, 168–201 μ in diameter. Mycelium dark, 7 μ thick. Hyphopodia sessile, alternate, slightly wavy, 5 x 9 μ. Asci spatulate, aparaphysate, 9 x 41–48 μ. Spores brown, 2-celled, 5–7 x 19–24 μ.

On *Miconia racemosa.* Las Marias, no. 8136 (type); Mayaguez, no. 7417; Trujillo Alto, nos. 9424, 7417a. On *Miconia thomasiana.* Sabana Grande, no. 9373.

ASTERINA DILABENS Syd. Ann. Myc. **2:** 168. 1904.

On *Tetrazygia elaeagnoides.* Cascinole, no. 9242; on *Solanum rugosum.* El Alto de la Bandera, no. 8661; on *Gesneria* sp. Rio

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Tanamá, no. 7907; on *Rhytidophyllum auriculatum.* Rio Tanamá, no. 8105.

Asterina ixonae n. sp.

Perithecia 168–180 μ in diameter, showing two distinct regions, the inner black, carbonaceous, the outer radiate with a very irregular margin. Asci elliptical, aparaphysate, 12 x 55 μ. Spores light brown, 2-celled, 3–5 x 12–14 μ. Mycelium brown, septate, 2 μ thick. Hyphopodia brown, sessile, subcylindrical, sparse, 5 x 9 μ long.

On *Ixona ferrea.* Mayaguez, no. 7070 (type). This species resembles *Asterina aspidii,* but is larger.

Asterina racemosae n. sp.

Perithecia 100–216 μ in diameter, ostiolate, grey-black, margin regular, carbonaceous. Mycelium septate, smoky, 5 μ thick. Hyphopodia sessile, alternate, 7 x 9 μ. Spores 2–3 x 12–17 μ, the inferior cell slightly longer than the superior.

On *Miconia racemosa.* Jajome Alto, no. 8402 (type).; Mayaguez, no. 7037; Las Piedras, nos. 9321, 9322; Trujillo Alto, no. 9425; on *Miconia sintenisii.* Rio Maricao above Maricao, nos. 3646, 3887; Las Marias, no. 312; on *Miconia impetiolarus.* Rio Piedras, no. 5701.

Asterina miconicola n. sp.

Perithecia 144–288 μ, black, carbonaceous, gregarious. Mycelium abundant, much branched, 5 μ thick, septate, grey-brown. Hyphopodia sessile, alternate, 9 x 7 μ. Spores 2–3 x 12–17 μ, the inferior cell slightly longer than the superior.

On *Miconia racemosa.* Maricao, no. 8940 (type); Bandera, no. 8292; on *Palicouria.* Jajome Alto, no. 5683a.

Asterina guianensis n. sp.

Perithecia radiate, distinctly ostiolate, green-brown, 96–144 μ in diameter. Free mycelium present, 7 μ thick, septate, green-brown. Hyphopodia sessile, 1-celled, hemispherical, 7 x 9 μ. Asci obovate, 28 x 48 μ, aparaphysate. Spores dark brown, 2-celled, cylindrical, tapering at the ends, 12–14 x 24–38 μ.

On *Miconia guianensis.* El Alto de la Bandera, no. 8250. This species resembles *A. camelliae* but is smaller.

ASTERINA CAMELLIAE Syd. and Butl. Ann. Myc. **9:** 389. 1911.

On *Miconia splendens.* El Alto de la Bandera, no. 8653. On unknown host. Jajome Alto, no. 8401.

ASTERINA CHRYSOPHYLLI Henn. Hed. **48:** 12. 1908.

On *Miconia laevigata.* Las Piedras, no. 2366 (type); on *Chrysophyllum* sp. San German, no. 4495; Vega Baja, no. 7608; on *Melastomaceae.* Lajas, no. 7145. The fungus examined on *Miconia laevigata* resembles the description given by Hennings.

Asterina tetrazygiae n. sp.

Perithecia round, carbonaceous, margin irregular, ostiolate, 168–280 μ in diameter. Mycelium 7 μ thick, dark brown, branches opposite. Hyphopodia irregular, alternate, not distinctly lobed, 7–9 x 14 μ. Asci ovate to elliptical, 48–50 x 60–65 μ, aparaphysate. Spores brown, 2-celled, 17–19 x 31–36 μ.

On *Tetrazygia* sp. Jajome Alto, nos. 8430, 8940; on *Tetrazygia elaeagnoides.* Rio Arecibo, no. 7778 (type). The fungus is larger than *A. megalospora.*

Asterina passifloricola n. sp.

Perithecia gregarious, forming spots, 1–3 mm. in diameter, round to cylindrical, 123 μ in diameter, or 96–157 x 120–203 μ. Mycelium light brown, branches few, 3–5 μ thick. Hyphopodia knob-like, 9 μ long, alternate, abundant. Asci numerous, 24–31 x 36–41 μ. Spores hyaline, becoming dark brown, ovate, 2-celled, heavy walled, the superior cell more rounded, 9–12 x 21 μ.

On *Passiflora rubra.* Dos Bocas, no. 8039; Monte de Ora, no. 5561. This fungus differs in its hyphopodia from *Asterina megalospora.*

ASTERINA TACSONIA Pat. Bull. Soc. Mycol. Fr. page 147. 1893.
var. **passifloræ** n. var.

Perithecia 132–156 μ in diameter, opening by a radiate fissure from the center to the outer margin, hypophyllous. Mycelium light brown, 5 μ thick, sparsely branched. Hyphopodia alternate, lobed, 7–9 μ long, sometimes knobbed. Asci 24 x 29–32 μ. Spores hyaline, 5–7 x 14–19 μ. Conidia spores brown, 1-celled, having a hyaline band through the center, 6–7 x 12–17 μ.

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On *Passiflora* sp. Dos Bocas below Utuado, no. 6575. On *Passiflora sexflora.* El Miradero, no. 9165; Dos Bocas, no. 8040. On unknown host, Rio Maricao above Maricao, no. 3654.

This fungus agrees in many details with *Asterina tacsonia.* However, the spores and asci found were smaller. No brown 2-celled spores were seen, nor was the brown membrane. This, however, may be due to the fact that the asci were immature. Further investigation may necessitate classifying it as a hyaline, 2-celled spored genus, thereby creating a new genus, which will be put in the key near *Claudella,* differing from it by having no appendages on the spores. It differs from *A. passifloricola* by being smaller and having lobed hyphopodia.

ASTERINA SOLANICOLA B. & C., Cuban Fungi no. 738. 1868.

On *Cestrum laurifolium.* Common throughout the island. On *Cestrum macrophyllum.* Monte Alegrillo, no. 7709a; on *Pavonia spinifex.* Vega Baja, no. 9265; on *Clusia gundlachii.* El Alto de la Bandera, no. 8690.

Asterina arnaudia n. sp.

Perithecia round, margin fimbriate, 132–156 μ in diameter, opening by a radial fissure from the center to the edge. The whole perithecium distinctly radiate. Mycelium 5 μ thick, dark brown, heavy walled, greatly branched. Hyphopodia knobbed, alternate, 9–12 μ. Asci 38–41 x 43–60 μ, aparaphysate, subglobose. Spores dark brown, echinulate, 2-celled, 9–12 x 26–34 μ.

On *Passiflora multiflora.* Rio Tanamá, no. 7945 (type), 7943; Catano, no. 4192; on *Passiflora sexflora.* El Alto de la Bandera, nos. 8642, 8284; Rio Arecibo, no. 7784. Named in honor of G. Arnaud for his work on the Asterineae. Asci and spores are larger than *A. passifloricola,* while spores are brown and the hyphopodia are not lobed as in *A. tacsonia.*

Asterina sydowiana n. sp.

Perithecia carbonaceous, edge entire, round, 112–224 μ in diameter. Mycelium dark brown, 2 μ thick. Hyphopodia alternate, hemispherical, sessile, 2 x 7 μ. Asci 19–31 x 36–38 μ, oval to nearly spherical. Spores hyaline, later becoming dark brown, 2-celled, granular in appearance, 9 x 21 μ.

On *Chrysophyllum* sp. Monte Alegrillo, no. 4731. Named in honor of H. Sydow for his work on the family Microthyriaceae.

Asterina psidii n. sp.

Perithecia gregarious, amphigenous, round, 228 μ in diameter, or oval, 190–302 μ, margin slightly fimbriate. Mycelium septate, brown, irregularly branched, 5–7 μ thick. Hyphopodia club shaped, 5 x 10–12 μ. Asci aparaphysate, ovate to elliptical, 33–38 x 60–65 μ. Spores when mature brown, 2-celled, 12–17 x 26–33 μ.

On *Psidium guajava.* Mayaguez, no. 310. This fungus resembles *A. carbonaceae,* but has larger perithecia and spores.

ASTERINA TRANSIENS Th. Abhand. des k. k. zoo.-bot. Ges. in Wien, vol. 7, part 3.

On *Melastomaceae.* Maricao, no. 4803a; Monte de Ora, no. 5747; Jajome Alto, no. 5652.

ASTERINA CORREACOLA Cke. and Mass. Grev. **16:** 5. 1887.

On *Melastomaceae.* Manati, no. 5249; on unknown host.

Asterina portoricensis n. sp.

Perithecia black, distinctly radiate throughout the entire perithecial covering, 72–84 μ in diameter, round, margin regular. Mycelium branching profusely, 5 μ thick. Hyphopodia alternate, cylindrical, sessile, 5 x 9–7 μ, alternate. Asci ovate, 19–21 x 19–29 μ. Spores dark, 2-celled, 9 x 17–19 μ.

On *Solanum* sp. Quebradillas, no. 5127 (type).

Asterina psychotriae n. sp.

Perithecia 84–201 x 94–240 μ, margin regular, carbonaceous. Mycelium dark brown, 5 μ thick, branches alternate. Hyphopodia sessile, 5 x 7–9 μ, alternate. Asci spatulate to ovate, 24 x 48 μ. Spores dark, 2-celled, granular, with a hyaline spot in each cell, heavy walled, equal celled, ovate, 7–12 x 14–19 μ.

On *Psychotria pubescens.* Mayaguez, no. 7581 (type).

ASTERINA ELAEOCARPI Syd. Abhand. der k. k. zoo.-bot. Ges. in Wien, vol. 7, part 3, page 73.

On *Cassia alata.* Mayaguez, no. 3913.

Specimens studied agreed with the description given by Sydow.

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ASTERINA SCHROETERI (Rehm) Th. Hedw. **37:** 326. 1898.

On *Chrysobalanus* sp. Guanajibo, no. 7230; on *Chrysobalanus icaco.* Mayaguez, no. 7413; Las Piedras, no. 9323; Manati, nos. 5247, 5281; Trujillo Alto, no. 9426; on *Chrysobalanus pellocarpa.* San José Laguna, no. 9208; on *Chrysobalanus icaco.* Mayaguez, no. 7431.

ASTERINA DIPLOCARPA Cooke, Grev. **10:** 129. 1882.

On *Croton discolor.* Guayanilla, no. 8540. The specimens examined had slightly larger perithecia, asci, and spores than *A. diplocarpa,* but the differences were not great enough to necessitate a new species.

ASTERINA PUNCTIFORMIS Lév. Ann. Sc. Nat. **5:** 267. 1846.

On *Gesneria* sp. no. 7464. No data.

Asterina myrciae n. sp.

Perithecia 108–116 μ in diameter, ostiolate, margin regular, carbonaceous. Mycelium 5 μ thick, branched, olive brown. Hyphopodia 2-celled, 12 x 21 μ, chiefly occurring in the axils of the branches, the superior cells smaller. Asci oval, 12–19 x 21–24 μ, or round, 17 μ in diameter. Spores olive brown, 2-celled, 7 x 19 μ, one side of the spore curved while the other is straight.

On *Eugenia* sp. Rosario, no. 9494 (type); on *Myrcia splendens.* Maricao, no. 8831; Mayaguez Mesa, nos. 7575, 7473.

ASTERINA CARBONACEA Speg. F. Guar. part 2, p. 47, no. 128.

var. **anacardii** n. var.

Perithecia 280–392 μ in diameter, round, carbonaceous, margin regular, fissure radiate, perithecia gregarious, 5 mm. in diameter. Mycelium 5 μ thick, dark brown, abundant. Hyphopodia 5 x 7 μ, cylindrical, sessile, alternate, numerous. Spores light brown, 2-celled, 31–36 x 12–14 μ. Each cell has two hyaline spots.

On *Anacardium excelsum.* Indiera Fria, Maricao, no. 3369. On *Melastomaceae.* Monte de Ora, no. 5745; Lugiullo Forest, nos. 5595, 544.

Asterina melastomacearum n. sp.

Perithecia 168–268 μ in diameter, round, black, margin fimbriate. Mycelium 7 μ thick. Hyphopodia alternate, sessile, slightly

wavy, 7 x 12 μ. Asci ovate, aparaphysate, 43 x 53–62 μ. Spores dark brown, 2-celled, 14 x 26 μ.

On *Miconia racemosa.* No. 7037. On *Miconia impetiolaris.* Jayaya, no. 375.

ASTERINA DIPLOCARPA Cooke, Grev. **10:** 129. 1882.

var. **cestricola** n. var.

Perithecia round to slightly oval, 132–168 μ in diameter, radiately dehiscent, often forming spots 4–8 mm. in diameter on the surface of the leaf. Mycelium grey-black, 2 μ thick, much branched. Hyphopodia alternate, lobed, sessile, 7 x 9 μ. Asci round to ovate, 31 x 36 μ, or 24 μ in diameter, aparaphysate. Spores dark brown, verrucose when mature, 7 x 19 μ, the inferior cell larger.

On *Cestrum* sp. Ejome Alto, nos. 8397, 8384; Arbonito, no. 8463; on *Cestrum macrophyllum.* No data.

The perithecia and spores are smaller than those of *A. diplocarpa.* The mycelium is also thinner and the hyphopodia are lobed.

Asterina theissenia n. sp.

Fungus gregarious, spots 5 mm. in diameter, often covering the entire upper surface of the leaf. Perithecia 168–265 μ in diameter. Top of the perithecium easily breaks away. Mycelium crenulate, 2 μ thick, dark brown. Hyphopodia alternate, cylindrical to hemispherical, 5 x 7 μ. Asci embedded, round to ovate, 24 μ in diameter, to 24 x 38 μ, aparaphysate. Spores brown, 2-celled, superior cell broader, 9 x 19 μ.

On *Melastomaceae.* Las Marias, no. 451; on *Miconia* sp. Las Marias, no. 759a.

Named in honor of F. Theissen for his great work on the Microthyriaceae.

ASTERINA DILABENS Syd. Ann. Myc. **2:** 168. 1904.

var. **hilliae** n. var.

Perithecia round to oval, ostiolate, 168–201 μ in diameter, to 414 x 280 μ, carbonaceous, margin fimbriate. Mycelium abundant, 7 μ thick. Hyphopodia sessile, lobed, 7 x 12 μ, alternate. Asci 21–26 x 36–60 μ, ovate, aparaphysate. Spores brown, 2-celled, equal, 7 x 24 μ. The fungus is colonial forming spots .5–3 mm. in diameter.

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On *Hillia parasitica.* El Alto de la Bandera, nos. 8569, 8298, 8264, 8706; Monte de Ora, no. 5676.

The ovate perithecia are larger as are also the asci and spores than of *Asterina dilabens.* The measurements of the round perithecia agreed with those of the description given by Sydow.

ASTERINA ACANTHOPODA Speg. F. Guar. part 2, page 47, no. 128.

On *Psychotria* sp. Monte de Ora, no. 5655. On unknown host, Manati, no. 5290.

Asterina versipoda n. sp.

Perithecia round, 224 μ in diameter, brown, distinctly radiate throughout, ostiolate. Mycelium brown, 3–5 μ thick, branched, septate. Hyphopodia 5 x 14 μ, club shaped, alternate. Asci 36 x 50 μ, or 41 μ in diameter, aparaphysate. Spores 12 x 29–34 μ, the superior cell longer. Pycnidia 84–96 μ in diameter, opening by radial fissures. Spores brown, 1-celled, 14–21 μ, some having a lighter band through the mid region.

On unknown host. Utuado, no. 4419.

Near *Asterina megalospora* from which it differs in having straight hyphopodia.

6. ENGLERULASTER v. Höhn. Frag. zur Myk. no. 520

ENGLERULASTER ASPERULISPORA (Gaill.) Th. Ann. Myc. **10:** 171. 1912.

On *Ilex maxima.* Maricao, no. 745. This fungus agrees with the original description given by Saccardo, but does not agree nearly so closely with the description by Theissen. The spines on the spores seem to persist upon fully ripe spores, not to be lost as the spores ripen as is suggested by Theissen.

7. ASTERINELLA Th. Ann. Myc. **10:** 160. 1912

Asterinella hippeastri n. sp.

Perithecia round, distinctly radiate throughout, vertically dehiscent, brown, 120 μ in diameter. Mycelium light brown, 2 μ thick, much branched, septate. Asci 19–21 x 29–31 μ, paraphyses slender. Spores grey-brown, 5–7 x 19 μ, equal celled.

On *Hippeastrum* sp. Mayaguez Mesa, no. 7590.

ASTERINELLA CYLINDROTHECA (Speg.) Th.

On *Eugenia* sp. Rosario, no. 9494; Lajas, no. 7182.

The description given for *A. cylindrotheca* by Theissen fitted the fungus studied on *Eugenia* sp.

Asterinella ixonae n. sp.

Perithecia black, ostiolate, round, radiate, 89–112 μ in diameter, gregarious, hyphophyllous, colonies often 3 mm. in diameter. Mycelium abundant, 2 μ thick, brown, much branched, crenulate, septate. Asci numerous, 9 x 14–17 μ. Spores 2-celled, dark brown, 2–7 x 9 μ.

On *Ixona ferrea*. Mayaguez Mesa, nos. 7591 (type), 7070, 7067.

ASTERINELLA MULTILOBATA (Winter) Th. Hedw. **26:** 25. 1887.

On *Ramurita cocculus*. Laoany, Samar, P. I. Collected by J. C. Ireland. On the same host, but no data as to the time and place of collection.

Asterinella phoradendri n. sp.

Perithecia round, 224–470 μ in diameter, black, carbonaceous, hard. Mycelium scarce, dark, septate, wavy, 5 μ thick, irregularly branched, non-hyphopodiate. Asci 41–55 x 62–84 μ. Spores brown, 2-celled, 17 x 33–41 μ, superior cell broader, obovate, inferior cell tapering toward the free end.

On *Phoradendron* sp. Maricao, nos. 4894 (type), 8717; Las Marias, no. 8228.

Asterinella melastomacearum n. sp.

Perithecia 120–336 μ in diameter, margin fimbriate, carbonaceous. Mycelium crenulate, dark, non-hyphopodiate. Asci 45–48 x 57–72 μ, aparaphysate. Spores 14–17 x 29–36 μ, 2-celled, dark, the superior cell shorter and more rounded. Spores slipper shaped, several vacuoled.

On *Melastomaceae*. Monte de Ora, no. 5745.

8. AULOGRAPHUM Lib. Plant Cryot. Ard. Exs. no. 272, 1834

AULOGRAPHUM CULMIGENUM Ell. Bull. Torrey Bot. Club, p. 65, 1881.

On *Miconia* sp. Mayaguez, no. 3936.

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The study of the fungus agreed with the description given by Ellis.

Aulographum cestri n. sp.

Perithecia linear, 26–29 x 96–120 μ. Mycelium dark, branched, 2 μ thick, non-hyphopodiate. Asci round to oval, 19–26 μ in diameter, or 24–31 μ. Spores 2-celled, hyaline, 17–20 x 5–7 μ, aparaphysate.

On *Cestrum* sp. Mayaguez, no. 7576.

9. LEMBOSIA Lév. Ann. Sci. Nat. ser. 3, **3:** 58. 1845

Lembosia portoricensis n. sp.

Perithecia linear, fissure long, 279 x 336 μ, carbonaceous. Mycelium 7 μ broad, brown. Hyphopodia clavate, dark brown, alternate, 7 μ long. Asci obovate, 19–24 x 34–39 μ, paraphyses indistinct. Spores 7 x 17–24 μ, the superior cell shorter and narrower. The fungus is epiphyllous, gregarious, often forming a spot 2–5 mm. in diameter.

On *Coccoloba laurifolia.* St. Ana, no. 7611 (type). Martin Pena, no. 9716.

Asci and spores and hyphopodia smaller than *L. sophorae.* Asci larger than those of *L. paveltae,* and the perithecia are smaller.

LEMBOSIA TENELLA Lév. Ann. Sc. Nat. ser. 3, **3:** 58. 1845.

On *Coccoloba uvifera.* Boqueron, no. 339c.

LEMBOSIA PHILODENDRI Henn. Hedw. **43:** 89. 1904.

On *Coccoloba uvifera.* Guauajillo, no. 7204.

LEMBOSIA ROLLINIAE Rehm. in herb. Ann. Myc. **11:** 42. 1913.

On *Miconia* sp. El Alto de la Bandera, no. 8639.

The perithecia of the fungus studied was larger than that of the specimen of Rehm. Iodine gave a blue coloring to the fruiting layer.

LEMBOSIA SCLEROLOBII Henn. Hedw. **43:** 265. 1904.

On *Miconia* sp. Anasco, no. 3590.

Asci smaller and perithecia broader than the measurements given by P. Hennings.

Lembosia rapaneae n. sp.

Perithecia straight to T form, 190–336 x 616–672 μ. Mycelium light brown, 5 μ thick, hyphopodia sparse, alternate, subcylindrical. 5 x 7 μ. Asci globose to clavate, paraphysate, 12 x 29–36 μ. Spores 2-celled, brown, with a hyaline spot in each cell, 7 x 21 μ. Paraphyses slender, longer than the asci.

On *Rapanea* sp. St. Ana, no. 7610 (type).

Lembosia sepotae n. sp.

Perithecia carbonaceous, fissure long, 224 x 616 μ. Mycelium dark brown, branched, 2 μ thick. Hyphopodia distinctly lobed, alternate, 7 x 9 μ. Asci 17–27 x 29–34 μ. Spores brown,, 2-celled, equal, 7–9 x 14–19 μ. Paraphyses slender with a globular tip, longer than the asci.

On *Sepota* sp. Manati, no. 5320 (type).

This fungus is near *L. philodendri,* but has smaller perithecia and different hyphopodia.

10. MORENOELLA Speg. Fungi Guaran. **1:** 258. 1883

Morenoella miconiae n. sp.

Perithecia black, fissure long, 145–168 x 235–425 μ. Mycelium dark brown, 2 μ thick, much branched. Hyphopodia cylindrical, 5 x 7–17 μ. Asci elliptical to ovate, 21–31 x 36–46 μ, aparaphysate. Spores dark, 9–12 x 20–21 μ, 2-celled, the superior cell shorter and broader.

On *Miconia splendens.* Las Marias, no. 8145 (type). On *Miconia macrophylla.* Las Marias, no. 8137; on *Miconia prasiana.* Las Marias, nos. 8165, 8160.

Morenoella miconicola n. sp.

Perithecia gregarious, forming colonies 1–7 mm. in diameter, carbonaceous, 313–448 x 470–860 μ; mycelium sparse, 5 μ thick, dark brown. Hyphopodia 7 μ long, hemispherical. Asci 33–43 x 69–84 μ, aparaphysate. Spores 12 x 24–29 μ, 2-celled, brown.

On *Miconia prasina.* Mayaguez Mesa, nos. 7451 (type), 7452.

MORENOELLA DOTHIDEOIDES (Ell. and Ev.) v. Höhn. Fragm. Myk. vol. 8, no. 357.

Synonym *Asteridium dothideoides* Ell. and Ev.

On *Miconia racemosa.* Maricao, no. 8940.

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MORENOELLA DOTHIDEOIDES (Ell. and Ev.) v. Höhn. Fragm. Myk. vol. 8, no. 357.

var. **impetiolaris** n. var.

Perithecia black, linear, fissure long, 280–336 μ, gregarious, forming spots 1–1.5 mm. in diameter, on the surface of the leaves. Mycelium 2 μ thick, black-brown. Hyphopodia alternate, clavate to cylindrical, wavy, 5 x 7 μ. Asci ovate, 29–31 x 36–45 μ, aparaphysate. Spores 7 x 19 μ, 2-celled, equal.

On *Miconia impetiolaris*. Mayaguez, no. 7421 (type); Consumo, no. 893.

Morenoella langeriae n. sp.

Perithecia gregarious, carbonaceous, 68 x 414 μ, fissure long. Mycelium 2 μ thick, dark brown. Hyphopodia 5–9 μ long, clavate, alternate. Asci nearly round, 36–41 x 43–48 μ. Spores dark brown, 2-celled, 12 x 24 μ.

On *Langeria resinosa*. St. Ana, no. 6689 (type); Rio Tanamá, no. 7821.

MORENOELLA CALEMI Rac. Parasit. Algen und Pilz, Javas, 3:28. 1900.

On *Epidendrum* sp. Maricao, no. 8809; on *Cresentia cajute*. Mayaguez, no. 972.

Morenoella cestri n. sp.

Perithecia 56–89 x 302–448 μ, carbonaceous, elongate. Mycelium 2 μ thick, brown. Hyphopodia opposite, 5 x 12 μ. Asci aparaphysate, obovate, 5–12 x 12–26 μ. Spores light brown, 3–5 x 9–12 μ, 2-celled, brown.

Host unknown. Quebradillas, no. 4994 (type).

MORENOELLA DECALVANS (Pat.) Th.

On unknown host. St. Ana, no. 6652; Dos Bocas below Utuado, no. 6539.

MORENOELLA DECALVANS (Pat.) Th. var. **rondeletiae** n. var.

On *Rondeletia* sp. St. Ana, no. 6689 (type).

This fungus differs from the type form in its much larger perithecia, 210–640 μ, and its narrower asci, 25–30 μ, and the absence of a denuded center.

MORENOELLA DECALVANS (Pat.) Th. var. **stigmatophylli** n. var.

On *Stigmatophyllum*. St. Ana, nos. 6654, 6552.

This fungus differs from the type in the absence of a denuded center, and from the above in the character of the spot and in the size of the perithecia. These two forms have distinct appearances and perhaps should be given specific rank. In view, however, of their asci and spore measurements, they are placed as varieties rather than as species. The form on *Rondeletia* has its perithecia rather distantly placed, while the other has them smaller and more crowded, thus giving a more complete covering to the leaf and giving the spot a markedly different appearance.

MORENOELLA DECALVANS (Pat.) Th. var. **langeriae** n. var.

Perithecia linear, 190–257 x 316–347 μ, margin fimbriate, carbonaceous, fissure long. Mycelium abundant, brown, 3 μ thick. Hyphopodia sessile, cylindrical to hemispherical, 1-celled, 2 x 9 μ, or 7 μ in diameter. Spores brown, 2-celled, 5 x 21–24 μ, aparaphysate.

On *Langeria* sp. Rio Tanamá, no. 821.

Perithecia were larger than those of *M. decalvans*.

MORENOELLA PORTORICENSIS Speg. Bull. de la Aca. Nat. de Sci. Cordoba **26:** 343. 1923.

On *Ocotea leucoxylon*. Trujillo Alto, nos. 9433 (type), 9436; Homuigueros K. & L., no. 7349; Mayaguez, no. 7393; Monte Alegrillo, nos. 4739, 4726; Mayaguez Mesa, no. 7560; Aibonito, no. 9422. On *Anona* sp.

MORENOELLA POTHODEI var. **laevigatae** n. var.

Perithecia linear, 145–201 x 336–493 μ, fissure large, 56 μ wide, carbonaceous, margin fimbriate. Mycelium 5 μ thick, brown, slightly wavy. Hyphopodia cylindrical, 7 x 12 μ, to globular, 7 μ in diameter, alternate. Asci ovate, 36 x 53–73 μ, aparaphysate. Spores brown, papillate, ovate, 2-celled, 12–14 x 24–29 μ.

On *Miconia laevigata*. El Alto de la Bandera, no. 8689.

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The mycelium was thinner and the perithecia smaller than the type. No conidia spores were seen.

Morenoella giganteae n. sp.

Perithecia linear, fissure long, carbonaceous, 302–504 x 784–1064 μ, hypophyllous. Mycelium green-brown, 5 μ thick. Hyphopodia clavate, 9 x 12–17 μ. Asci ovate to spatulate, 33–41 x 84–96 μ, aparaphysate. Spores green-brown, 14 x 26–29 μ.

On *Miconia laevigata.* Rio Maricao above Maricao, no. 3645 (type).

Morenoella melastomacearum n. sp.

Perithecia linear, fissure long, carbonaceous, 336 x 784 μ. Mycelium brown, 5 μ thick. Hyphopodia alternate, sparse, sessile, cylindrical to hemispherical, often hooked, 9 x 14 μ. Asci embedded, oval, 41–48 x 55–72 μ, aparaphysate. Spores dark brown, smooth, heavy walled, 12 x 26–29 μ.

On *Melastomaceae.* Monte de Ora, no. 544 (type).

This fungus is near *M. pothoidei,* but the hyphopodia and perithecia are larger and the asci smaller. No conidia were observed.

Morenoella psychotriae n. sp.

Perithecia linear, carbonaceous, 84–120 x 192–276 μ. Mycelium dark brown, 5 μ thick. Hyphopodia 2 x 9.6 μ, sessile, alternate, rounded. Spores 2 x 9–10 μ, 2-celled, light brown.

On unknown host. Monte de Ora, no. 5664.

11. ECHIDNODES Th. and Syd. Ann. Myc. **2:** 436. 1913

Echidnodes bromeliae n. sp.

Perithecia carbonaceous, straight to T form, 201–224 x 481–672 μ, non-hyphopodiate. Mycelium 5 μ thick, sparse. Asci 24–26 x 48–50 μ. Paraphyses not clearly distinct. Spores 7 x 26–29 μ.

On *Bromelia* sp. Rio Tanamá, no. 7913 (type); Maricao, no. 8853; Jajome Alto, no. 8425.

Asci and spores smaller than those of *E. stellatum,* and paraphyses fewer.

Echidnodes mammeae n. sp.

Perithecia 123–145 x 168–280 μ, carbonaceous, fissure long. Mycelium brown, much branched, 5 μ thick, non-hyphopodiate. Asci 17–21 x 24–41 μ, elliptical. Spores dark brown, 2-celled, the

upper cell shorter and broader, 7–10 x 18–19 μ. Paraphyses filiform.

On *Mammea americana*. El Miradero, no. 9139 (type).

12. ECHIDNODELLA Th. and Syd. Ann. Myc. 15: 250. 1917

Echidnodella miconiae n. sp.

Perithecia gregarious, forming colonies 2–10 mm. in diameter, hypophyllous, distinctly radiate throughout, margin irregular but not fimbriate, 81–185 x 105–125 μ. Mycelium light brown, fairly abundant, 1–2 μ thick, non-hyphopodiate. Asci aparaphysate, spatulate, 14–15 x 24–37 μ. Spores 2-celled, dark, 3–4 x 17–20 μ. Pycnidia spores 2 x 11–13 μ.

On *Miconia laevigata*. Aguas Buenas, no. 302 (type).

Echidnodella myrciae n. sp.

Perithecia linear, congregated, 56–78 x 224–336 μ, straight to curved and T form, fissure long. Free mycelium light brown, septate, 5 μ thick. Asci oval to obovate, 9–12 x 14–17 μ, aparaphysate. Spores 2-celled, brown, ovate, 5 x 9 μ.

On *Myrcia splendens*. Jajome Alto, no. 8431 (type).

Echidnodella fourcroyae n. sp.

Perithecia linear, carbonaceous, 112–168 x 324–336 μ, free mycelium scarce. Long fissure present. Mycelium brown, 2 μ thick, septate, non-hyphopodiate. Asci embedded, 24–28 x 33–36 μ, aparaphysate. Spores 2-celled, equal, 9 x 17 μ.

On *Fourcroya* sp. Maricao, nos. 8771, 8822; Calia Baja, no. 9081; Rosario, no. 9499; Maricao, no. 3496.

The fungus is smaller than *Echidnodella camphorae*.

Echidnodella rondeletiae n. sp.

Perithecia linear, carbonaceous, 72 x 288 μ. Mycelium dark brown, 3 μ thick, non-hyphopodiate. Asci 12 x 27 μ, aparaphysate. Spores 2-celled, equal, oval, 2 x 7 μ.

On *Rondeletiae* sp. Monte Alegrillo, no. 4505.

Echidnodella melastomacearum n. sp.

Perithecia scattered, linear, opening by a longitudinal fissure, margin fimbriate, 168–192 x 240–252 μ, gregarious, spots formed about 5 mm. in diameter. Mycelium sparse, branched, brown, 5 μ

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thick. Hyphopodia alternate, 1-celled, margin irregular, sessile, 5 x 7 μ. Asci ovate, aparaphysate, embedded, 29–36 x 41–60 μ. Spores fuscous, 2-celled, equal, 9 x 24–26 μ.

On *Miconia* sp. Las Marias, nos. 8160 (type), 812. On *Miconia religinosa*. Maricao, no. 4796. On unknown host Caracas, Ven., nos. 2997, 2993. On *Melastomaceae*. Ponce, no. 4375.

NOTES AND BRIEF ARTICLES

[*Unsigned notes are by the editor*]

A popular illustrated article on Truffles, by W. A. Murrill, appeared in the *Scientific American* for May, 1924.

The fungi collected by the Canadian Arctic Expedition of 1913–18 have been studied and reported upon by John Dearness, who described several as new to science.

A study of decay in Douglas fir in the Pacific Northwest, by J. S. Boyce, appeared as Depart. Bull. 1163 of the U. S. Dept. of Agriculture. *Trametes Pini, Polyporus Schweinitzii, Fomes Laricis,* and *Fomes roseus* are said to be the chief destructive agents.

The mat industry in Japan is largely dependent upon a rush (*Juncus effus decipiens*), which is subject to a stem disease due to a fungus described by M. Kasai as *Cercosporina juncicola.*

A blight of the foliage of gladioli caused by *Bacterium gummisudans* sp. nov. was recently described by Lucia McCulloch in the *Journal of Agricultural Research.*

Potatoes are reported by M. Wilson and others to be attacked by *Armillaria mellea* in Japan and Australia. In one case, the infection was traced to an old sycamore stump.

Strawberry rots in Florida and California are quite different, according to N. E. Stevens, who finds *Rhizopus nigricans* the chief agent in Florida and *Botrytis cinerea* most abundant on the ripe fruits in the west.

The chief cocoa diseases in Trinidad, according to Nowell, who has recently written a book on plant diseases, are die-back, Diplodia pod-rot, algal disease, thread blight, Rosellinia root disease, black pod-rot, and canker.

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The development of the fruit-body of *Rhizopogon parasiticus* Coker & Totten is treated in a profusely illustrated article by H. R. Totten in the *Journal of the Elisha Mitchell Scientific Society* for August, 1923.

The genus *Armillaria* is discussed in a recent paper of the Michigan Academy of Science by C. H. Kauffman, who includes in it a number of species usually placed in other genera.

Plants poisonous to insects are discussed in Dept. Bull. 1201 of the U. S. Dept. of Agriculture. Of the 260 species catalogued, only 5% or less are satisfactory from a practical point of view, chief among these being certain species of *Nicotiana, Chrysanthemum,* and *Derris.*

Peony diseases noted in Quebec and Ontario by Coulson are: *Botrytis* blight (*B. Paeoniae*), *Cladosporium* leaf blotch (*C. Paeoniae*), *Septoria* leaf spot (*S. Paeoniae berolinensis*), mosaic, two leaf spots of unknown causation and a disease of the underground parts. The most troublesome of these is said to be the *Septoria* leaf spot.

Spores and pollen grains, according to Stakman and others, are relatively abundant at altitudes up to 11,000 ft. in the Mississippi Valley, but become scarcer at higher altitudes. A few *Puccinia* spores were caught on a spore-trap in an aeroplane 16,500 ft. above sea-level.

The geasters of the United States and Canada are treated by Coker in a very attractive illustrated article in the *Journal of the Elisha Mitchell Scientific Society* for April, 1924. There are 55 pages of text and 19 plates, nearly 30 species being recognized for the region.

"The Clavarias of the United States and Canada," by Dr. W. C. Coker, is a handsome volume of 209 pages and 92 plates, several

of which are colored. The author has collected widely and visited many herbaria in the preparation of this important work, which will at once make the coral-fungi popular with students. Dr. Coker has consented to prepare the manuscript on this group of fungi for *North American Flora.*

GYROMITRA POISONING

In the last week of May, 1924, the Ontario newspapers reported a case of "mushroom-poisoning" under the heading "One dead and two dying from eating Morels." I visited the locality, which is in the County of Norfolk, Ontario, about forty miles distant from my home, and learned without doubt that the "mushroom" gathering had consisted exclusively of lorchels,—*Gyromitra esculenta* (Pers.) Fr.

The father, an intelligent man, assured me that he had in former seasons eaten this fungus, locally known as "elephant's ears," without experiencing any noticeable ill-effects. In preparing them he said that they had rejected all but fresh, clean specimens and as usual they had put them to soak over night in salt-water to be drained off before cooking. Two members of the family had eaten rather sparingly and had not been very ill. He attributed his own recovery and that of his wife and the fatal consequences to his son, aged sixteen, to the fact that in their cases vomition had occurred sooner than in the son's. Death ensued in 48 hours after the meal. The cause, symptoms and progress of the poisoning to its fatal ending were quite similar to those in the case of Mrs. Wm. Blake, near Aylmer, Ont., referred to in MYCOLOGIA 3: 76.

The situation where the collection was made was at the top and half-way down the side of a somewhat sandy bank thinly wooded with pine, hemlock, oak, witch-hazel, &c. The day after the funeral there was still a good crop of fresh lorchels on this slope. The largest one seen measured 17½ inches around its irregular pileus and 9¼ inches from its summit to the base of its stem. The majority of them, however, were of the usual size and bay-red color and looked like clean wholesome food.

JOHN DEARNESS.

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BUENOS AIRES Feb. 8, 1924

DR. CARLOS SPEGAZZINI

Yesterday I spent the day with Dr. Carlos Spegazzini at his house in La Plata. He lives at No. 477, Calle 53, in a fine section of the town not far from the principal places of interest and within a short distance of the railway station. His house is immense, with a large patio, or central court, filled with plants and birds. A small green parrokeet is a great pet and makes a lot of noise unless it is continually fondled. It loves especially to sit on Dr. Spegazzini's shoulder and comb out his whiskers with its curved beak. On the left as one enters is the Doctor's study, but he seems to have books and specimens everywhere and we went from one room to another to examine them, keeping the four daughters and the Indian servant girl dodging about to keep out of our way.

Dr. Spegazzini is an old man, but strong in body, young in thought, and still full of the spirit of adventure. He has just returned from Tierra del Fuego, is planning to go to Europe next year, and promises me to come to the United States the following year "if nothing happens." He was born in a village in Italy and was a student of the fungi there before coming to Argentina. He has described a great many South American plants in various groups but his work is poorly known elsewhere and few of his specimens have been seen by other botanists. Like our Dr. Peck, he has been a pioneer in many fields and has had to make his way practically alone, although I find that some of his fungi have been sent to Bresadola, the great mycologist of Trent, in Italy. Like John Torrey, his work has been in Chemistry and his play in Botany, Anthropology, etc. The great Linnaeus was a physician and many preachers, like Berkeley, Curtis, and Schweinitz, have been mycologists. It is good to have a hobby that will take one out into the woods and fields.

The Doctor is exceedingly genial in manner and very kind-hearted. He and his son stayed with me all day long, showing me specimens, photographs, and publications; giving me anything I wanted for our herbarium; taking me out to a sportsman's club for lunch; visiting the museum; and going on a short collecting trip in the woods. We talked French, German, English, Latin, and Spanish indiscriminately and recklessly, keeping up a con-

tinuous flow of conversation lest our ignorance in certain languages be discovered. When we returned from a very hot walk, for the day was unusually warm, one of the daughters had made some excellent ice cream, which we ate greedily.

Seeing the great Natural History Museum at La Plata under Dr. Spegazzini's special care was a privilege and pleasure I shall never forget. The remains of extinct animals, the various races of men, the birds and snakes and insects, with many other things of greatest interest to a naturalist were beautifully displayed and represented by countless specimens. I saw the handsome butterflies for which South America has long been famous and the birds so delightfully described by Hudson. There was a whole case full of the green beetles used in jewelery and Dr. Spegazzini pointed out to me the longicorn beetle that is fast killing the large eucalyptus trees (*Eucalyptus amygdalina*) near the museum. This borer was introduced from Australia with the trees and nothing can be done to stop its ravages.

In an oak grove nearby, where the wild doves were softly cooing, we found our common polypore, *Hapalopilus gilvus,* abundant on decayed white oaks; while beside a lake a little farther on we saw many white poplar trees (*Populus alba*) bent over from the attacks of another polypore, *Trametes gallica,* which feeds especially on living poplars and willows. At the main entrance to the museum building, near some beautiful young trees of the clammy locust (*Robinia viscosa*) with rose-colored flowers, Dr. Spegazzini stopped and sadly pointed to a Ficus tree planted as a memorial to his two older sons killed in the late war in Europe.

I had remarked that Paraguay tea was as yet an untasted beverage so far as I was concerned; so, before leaving La Plata, the Indian girl brought me some in a cup made of horn with a tube of silver through which it is sipped. Then I came away with a large box of specimens, several books, and many pleasant memories. One of these books, which lies before me now on the table, is a thick volume devoted to the Acacia trees and shrubs of Argentina, well illustrated with photographs and drawings, for Dr. Spegazzini, in addition to all his other accomplishments, is an excellent photographer and artist.

W. A. MURRILL.

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